

Attachment A
Chapter 2: Drainage

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SECTION 200 Introduction

The Board of Supervisors desires to protect and preserve the physical beauty, historical heritage and environmental integrity of the County. The Board recognizes that development may degrade the waters through increasing flooding, stream channel erosion, and the transport and disposition of waterborne pollutants. Therefore, the County finds it is in the public interest to enable the establishment of stormwater management programs.

SECTION 201 General Provisions

201.1. Statutory Authority

The Virginia Stormwater Management Law (“Law”, also known as the Virginia Stormwater Management Act or “Act”) Title 10.1, Chapter 6, Article 1.1 of the *Code of Virginia*, enables localities to adopt, by ordinance, a stormwater management program consistent with state regulations promulgated pursuant to the Law.

201.2. Purpose

The purpose of Sections 201 through 207 is to establish minimum stormwater management requirements and controls to protect properties, safeguard the general health, safety, and welfare of the public residing in watersheds within this jurisdiction, and protect aquatic resources. These sections seek to meet that purpose through the following objectives:

1. Require that land development and land conversion activities control the after-development runoff characteristics, as nearly as practicable, to the pre-development runoff characteristics in order to reduce the magnitude and frequency of flooding, siltation, stream bank erosion, and property damage;
2. Establish minimum design criteria for the protection of properties and aquatic resources downstream from land development and land conversion activities from damages due to increases in volume, velocity, frequency, duration, and peak flow rate of storm water runoff;
3. Establish minimum design criteria for measures to minimize nonpoint source pollution from stormwater runoff which would otherwise degrade water quality; and
4. To reduce flood damage in an effort to safeguard public health, safety and property.

201.3. Applicability

This chapter shall be applicable to all subdivision, site plan, or land use conversion applications, unless eligible for an exception by the Board of Supervisors or its designee. This chapter also applies to land development activities that are smaller than the minimum applicable criteria if such activities are part of a larger common plan of development that meets the applicability criteria, even though multiple separate and distinct land development activities may take place at different times on different schedules.

To prevent the adverse impacts of stormwater runoff, the county has developed a set of performance standards that must be met at all development sites. These standards apply to any permanent land development or land use conversion activity ~~disturbing~~ that converts 10,000 square feet or more of land from grass, wooded or otherwise natural, to gravel or other impervious area (e.g. SWM/BMPs are not required for land development projects where the permanent conversion is less than 10,000 square feet).

Economic hardship is not sufficient reason to grant an exception from the requirements of this chapter.

The following activities are exempt from this chapter:

1. Permitted surface or deep mining operations and projects, or oil and gas operations and projects conducted under the provisions of Title 45.1 of the Virginia Stormwater Management Act;
2. Tilling, planting or harvesting of agricultural, horticultural, or forest crops;
3. Single-family residences separately built and not part of a subdivision, including additions or modifications to existing single-family detached residential structures;
4. Land development projects that disturb less than 10,000 square feet of land area; and
5. Linear development projects, provided that (i) less than 10,000 square feet of land will be disturbed per outfall or watershed, (ii) there will be insignificant increases in peak flow rates, and (iii) there are no existing or anticipated flooding or erosion problems downstream of the discharge point.

Further the following activities are exempt from Sections 203 and 204 of this chapter, unless otherwise required is Section 201.8 of this chapter.

1. Family transfers, administrative and large lot subdivisions.
2. Residential subdivisions in which all lots are greater than 3 acres or residential subdivisions with a total of 6 or fewer lots. If the Residue has an existing house, drainfield, etc. on it and no new construction is going to occur, then it does not count as a lot for this requirement.

201.4. Compatibility with Other Permit and Ordinance Requirements

This chapter is not intended to interfere with, abrogate, or annul any other ordinance, rule or regulation, statute, or other provision of law. The requirements of this chapter should be considered minimum requirements, and where any provision of this chapter imposes restrictions different from those imposed by any other ~~or~~ ordinance, rule or regulation, or other provision of law, whichever provisions are more restrictive or impose higher protective standards for human health or the environment shall be considered to take precedence.

201.5. Severability

If the provisions of any article, section, subsection, paragraph, subdivision or clause of this chapter shall be judged invalid by a court of competent jurisdiction, such order of judgment shall

not affect or invalidate the remainder of any article, section, subsection, paragraph, subdivision or clause of this chapter.

201.6. Reference Documents

The latest edition of the following documents shall be used to guide the design of drainage, stormwater management and related elements ~~utilized for the purposes of establishing design guidelines, which are not specifically detailed in this document but are included by this reference;~~

1. Virginia Stormwater Management Handbook (VSMH), prepared by Virginia Department of Conservation and Recreation, ~~Chapters 3-6.~~
2. Northern Virginia BMP Handbook: A Guide to Planning BMP's in Northern Virginia, prepared by the Northern Virginia Planning District Commission and the Engineers and Surveyors' Institute.
3. Virginia Erosion and Sediment Control Handbook, prepared by the Virginia Department of Conservation and Recreation.

Other design criteria may be accepted solely at the discretion of the Program Administrator. Sufficient support material to document the methodology will be required.

201.7. Program Administration

The Board of Supervisors designates the County Administrator or his designee as the Program Administrator.

201.8. General Drainage Requirements

(see also appendix [A201.8](#))

1. Determination of flooding and channel erosion impacts to receiving streams and/or drainage ways due to land development projects shall be measured at each point of discharge from the development project and such determination shall include any runoff from the balance of the watershed which also contributes to that point of discharge.

A. Flooding - Calculations for determining flooding shall be submitted in accordance with the following:

1. Downstream properties and waterways shall be protected from damages from localized flooding due to increases in volume, velocity and peak flow rate of stormwater runoff in accordance with the minimum design standards set out in this section.
2. The 2 and 10-year post-developed peak rate of runoff from the development site shall not exceed the 2 and 10-year pre-developed peak rate of runoff.
3. In areas of streambeds subject to inundation with 100 acres or more of watershed, 100-year flood water surface elevations shall be computed. Drainage easements must be designated on site to preserve the

inundation zone. Calculations shall be based on land use as outlined in the Comprehensive Plan.

4. All requirements as set forth in MS-19 and TB-1 must be met.

5. Linear development projects shall not be required to control post-developed stormwater runoff for flooding, if there is no net increase in impervious area, except in accordance with a watershed or regional stormwater management plan.

B. Stream Channel Erosion - To protect stream channels from degradation, specific channel protection techniques shall be provided as prescribed in the Virginia Stormwater Management Handbook and the Virginia Erosion and Sediment Control Handbook Regulations in accordance with the following:

1. Properties and receiving waterways downstream of any land development project shall be protected from erosion and damage due to increases in volume, velocity and frequency of peak flow rate of stormwater runoff in accordance with the minimum design standards set out in this section (see appendix).

2. The Department of Community Development shall require compliance with Minimum Standard 19 of 4 VAC 50-30- 40 of the Erosion and Sediment Control Regulations, promulgated pursuant to Article 4 (§ 10.1-560 et seq.) of Chapter 5 of Title 10.1 of the *Code of Virginia*.

2. Natural ~~drainage~~/channel characteristics and drainage divides shall be preserved to the maximum extent practicable. Drainage analyses shall be considered within each drainage area.

3. Land development projects shall comply with the Virginia Erosion and Sediment Control Law and attendant regulations and the County Soil Erosion and Sediment Control Ordinance.

4. Construction of drainage improvements, stormwater management facilities, or modifications to ~~drainage ways and~~ natural channels shall comply with all applicable laws and regulations. The applicant shall assure that all applicable environmental permits have been acquired for the project prior to ~~approval of the final plan~~ the issuance of the land disturbing permit. Evidence of approval of all necessary permits, such as, but not limited to: US Army Corps of Engineers (COE), Virginia Department of Environmental Quality (DEQ), Virginia Department of Conservation and Recreation (DCR), Virginia Marine Resources Commission (VMRC), etc. shall be provided.

5. Construction of drainage improvements, stormwater management facilities, and/or modifications to ~~drainage ways~~ within a Federal Emergency Management Agency (FEMA) designated 100-year floodplain shall be avoided to the maximum extent practicable-possible. When this is unavoidable, all improvements of modifications shall be in compliance with all applicable regulations under the National Flood Insurance Program, 44 CFR Part 59 and shall be engineered for structural integrity during the 100 year storm event by the primary flooding source or secondary source, whichever yields

the most conservative design. Any construction activity proposed within a 100-year FEMA defined floodplain, will require the submission of a detailed Floodplain Study documenting pre-development and post-development conditions for review by the County. Modifications to the effective regulatory floodplain will require final FEMA determination at the owner's expense.

6. Conveyance - All stormwater conveyance practices shall be designed to convey stormwater to allow for the maximum removal of pollutants and reduction in flow velocities. This shall include, but not be limited to:

A. Maximizing of flow paths from inflow points to outflow points;

B. Protection of inlet and outlet structures;

C. Elimination of erosive flow velocities. (The Virginia Stormwater Management Handbook ~~Manual~~ and Virginia Erosion and Sediment Control Handbook provides detailed guidance on the requirements for conveyance for stormwater practices.)

7. Proposed residential, commercial, or industrial subdivisions shall apply these stormwater management criteria to the land development process as a whole. Individual lots in new subdivisions shall not be considered separate land development projects, but rather the entire subdivision shall be considered a single land development project. Hydrologic parameters shall reflect the ultimate basin planned land uses and shall be applied in all engineering calculations.

8. The owner must prepare an erosion and sediment control plan in accordance with the Virginia Erosion and Sediment Control Minimum Standards (4VAC50-30-40) and the requirements of this chapter for all construction activities related to implementing any on-site disturbance exceeding 10,000 SF. The Erosion and Sediment Control Plan shall be submitted concurrently with the development plan.

9. In subdivisions, all SWM/BMP facilities shall be placed in a common area unless prior approval has been obtained from the Program Administrator. ~~Further, proposed or natural drainage ways, shall not occur across or upon individual lots unless prior approval has been obtained from the Program Administrator.~~ Proposed lot lines shall follow ~~observe~~ natural channels ~~drainage ways~~ to the maximum extent practicable.

10. Maintenance and Access Easements - The owner must ensure access to all drainage improvements and/or stormwater treatment practices at the site for the purpose of inspection and repair by securing all the maintenance easements needed on a permanent basis (see appendix). These easements will be recorded with the plan and will run with the land in all transfers, assigns, assumptions, or other of title to the property. See also subsection 203.4

A. All drainage improvements and/or stormwater management facilities must be located within a drainage easement (~~i.e., 25 feet from the toe of slope and/or periphery~~) and shall be maintained by the landowner, an Owners or Homeowners Association, or other legal entity approved by the Board of Supervisors. Maintenance responsibilities shall be established in the required Deed of Dedication, in a form acceptable to the County Attorney.

B. Access to SWM/BMP facilities must be provided via an all weather vehicular traversable route contained within appropriate easements (see appendix).

C. Stormwater drainage easements shall be extended, where necessary, to upstream and downstream property lines to permit future development reasonable access to on-site ~~drainage ways or~~ drainage systems for overall continuity.

11. Embankments and water impoundments shall be in accordance with 3.01 through 3.08 of the Virginia Stormwater Management Handbook.

12. The location of drainage easements shall allow for the adequate use and enjoyment of the individual residential lots. To the maximum extent practical, drainage easements serving lots less than one-half (1/2) Acre shall not bisect the lot and shall be located along the property lines. On such parcels, consideration may be given for the on-lot location of drainage easements where a contiguous area of the lot, exclusive of the drainage easement, contains at least seventy-five (75) percent of the required minimum lot area specified for the district in which located as determined by the Zoning Administrator.

SECTION 202 Definitions:

For the purposes of this section, the following words and phrases shall have the meanings respectively ascribed to them for Sections 200 through 207 and A200 through A207:

"Accelerated Erosion" means erosion caused by development activities that exceeds the natural processes by which the surface of the land is worn away by the action of water, wind, or chemical action.

"Act" means Article 1.1 (§ 10.1-603.1 et seq.) of Chapter 6 of Title 10.1 of the *Code of Virginia*.

"Adequate Channel" means a channel with a defined bed and banks, or an otherwise limited flow area that will convey the designated frequency storm event without overtopping the channel banks nor causing erosive damage to the channel bed or banks.

"Administrator" A representative of the Fauquier County Board of Supervisors who has been appointed to serve as an agent of the Board of Supervisors in administering this Ordinance.

"Applicant" means any person submitting a stormwater management plan for approval.

"Aquatic Bench" means a 10- to 15- foot wide bench around the perimeter of a permanent pool that ranges in depth from zero to 12 inches. Vegetated with emergent plants, the bench augments pollutant removal, provides habitats, conceals trash and water level fluctuations, and enhances safety.

"Best Management Practice (BMP)" means a structural or nonstructural practice which is designed to minimize the impacts of development on surface and groundwater systems.

"Bioretention Basin" means a water quality BMP engineered to filter the water quality volume through an engineered planting bed, consisting of a vegetated surface layer (vegetation, mulch, ground cover), planting soil, ~~and~~ sand bed, and into the in-situ material.

Revisions Adopted: ?

"Bioretention Filter" means a bioretention basin with the addition of a sand filter collection pipe system beneath the planting bed.

"Board" means the Fauquier County Board of Supervisors.

"Building" means any structure, either temporary or permanent, having walls and a roof, designed for the shelter of any person, animal, or property, and occupying more than 100 square feet of area.

"Channel" means a natural stream or manmade ~~artificial~~ watercourse with a ~~definite~~ defined bed and banks that conducts continuously or periodically flowing water.

"Constructed Wetlands" means areas intentionally designed and created to emulate the water quality improvement function of wetlands for the primary purpose of removing pollutants from stormwater.

"Dam Height" is defined as the vertical distance from the streambed at the downstream toe of slope of the dam embankment to the top of the dam.

"Dedication" means the deliberate ~~appropriation~~ granting of property by its owner for general public use.

"Department" means the Virginia Department of Conservation and Recreation.

"Detention" means the temporary storage of storm runoff in a stormwater management practice with the goals of controlling peak discharge rates and providing gravity settling of pollutants.

"Detention Facility" means a detention basin or alternative structure designed for the purpose of temporary storage of stream flow or surface runoff and gradual release of stored water at controlled rates.

"Developer" means a person who undertakes land disturbance activities.

"Development" means *land development* or *land development project*.

"Drainage Easement" means a legal right granted by a landowner to a grantee allowing the use of private land for ~~drainage and~~ stormwater management purposes.

"Erosion and Sediment Control Plan" means a plan that is designed to minimize the accelerated erosion and sediment runoff at a site during construction activities.

"Flooding" means a volume of water that is too great to be confined within the banks or walls of the stream, water body or conveyance system and that overflows onto adjacent lands, causing or threatening damage.

"Grassed Swale" means an earthen conveyance system which is broad and shallow with erosion resistant grasses and check dams, engineered to remove pollutants from stormwater runoff by filtration through grass and infiltration into the soil.

"Hydrologic Soil Group (HSG)" means a Natural Resource Conservation Service classification system in which soils are categorized into four runoff potential groups. The groups range from A soils, with high permeability and little runoff production, to D soils, which have low permeability rates and produce much more runoff.

"Impervious Cover" means a surface composed of any material that significantly impedes or prevents natural infiltration of water into soil. Impervious surfaces include, but are not limited to, roofs, buildings, streets, parking areas, and any concrete, asphalt, or compacted gravel surface.

"Impoundment Capacity" is defined as the volume capable of being impounded at the top of the dam.

"Industrial Stormwater Permit" means an National Pollutant Discharge Elimination System permit issued to a commercial industry or group of industries which regulates the pollutant levels associated with industrial stormwater discharges or specifies on-site pollution control strategies.

"Infiltration" means the process of percolating stormwater into the subsoil.

"Infiltration Facility" means any structure or device designed to infiltrate retained water to the subsurface. These facilities may be above grade or below grade.

"Jurisdictional Wetland" means an area that is inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil conditions, commonly known as hydrophytic vegetation.

"Land Conversion Activities" means any activity that results in a modification to the current or natural condition.

"Land Development" or "Land Development Project" means a manmade change to the land surface that potentially changes its runoff characteristics.

"Land Disturbance Activity" means any activity which changes the volume, velocity, or peak flow discharge rate of rainfall runoff from the land surface. This may include the grading, digging, cutting, scraping, or excavating of soil, placement of fill materials, paving, construction, substantial removal of vegetation, or any activity which bares soil or rock or involves the diversion or piping of any natural or man-made watercourse.

"Landowner" means the legal or beneficial owner of land, including those holding the right to purchase or lease the land, or any other person holding proprietary rights in the land.

"Linear Development Project" means a land development project that is linear in nature such as, but not limited to, (i) the construction of electric and telephone utility lines, and natural gas pipelines; (ii) construction of tracks, rights-of-way, bridges, communication facilities and other related structures of a railroad company; and (iii) highway construction projects.

"Local Stormwater Management Program" or "Local Program" means a statement of the various methods adopted pursuant to the Act and implemented by a locality to manage the runoff from land development projects and shall include an ordinance with provisions to require the control of after-development stormwater runoff rate of flow, water quality, the proper maintenance of stormwater management facilities, and minimum administrative procedures consistent with this chapter.

"Locality" means Fauquier County.

"Maintenance Agreement" means a legally recorded document that acts as a property deed restriction, and which provides for long-term maintenance of storm water management practices.

"Nonpoint Source (NPS) Pollution" means pollution from any source other than from any discernible, confined, and discrete conveyances, and shall include, but not be limited to, pollutants from agricultural, silvicultural, mining, construction, subsurface disposal and urban runoff sources.

"Nonpoint Source Pollutant Runoff Load" or "Pollutant Discharge" means the average amount of a particular pollutant measured in pounds per year, delivered in a diffuse manner by stormwater runoff

"Off-Site Facility" means a stormwater management measure located outside the subject property boundary described in the permit application for land development activity.

"On-Site Facility" means a stormwater management measure located within the subject property boundary described in the permit application for land development activity.

"Owner" means the owner or owners of the freehold of the premises or lesser estate therein, a mortgagee or vendee in possession, assignee of rents, receiver, executor, trustee, lessee or other person, firm or corporation in control of a property.

"Percent Impervious" means the impervious area within the site divided by the area of the site multiplied by 100.

"Person" means any individual, partnership, firm, association, joint venture, public or private corporation, trust, estate, commission, board, public or private institution, utility, cooperative, county, city, town or other political subdivision of the Commonwealth, any interstate body or any other legal entity.

"Plan-approving Authority" means the Fauquier County Board of Supervisors or its designee, responsible for determining the adequacy of a submitted stormwater management plan.

"Planning Area" means a designated portion of the parcel on which the land development project is located. Planning areas shall be established by delineation on a master plan. Once established, planning areas shall be applied consistently for all future projects.

"Post-development" refers to conditions that reasonably may be expected or anticipated to exist after completion of the land development activity on a specific site or tract of land.

"Pre-development" refers to the conditions that exist at the time that plans for the land development of a tract of land are approved by the Plan-approving authority. Where phased development or plan approval occurs (preliminary grading, roads and utilities, etc.), the existing conditions at the time *prior to* the first item being approved or permitted shall establish pre-development conditions.

"Program Administrator" means the County Administrator or his designee.

"Program Authority" means Fauquier County.

"Recharge" means the replenishment of underground water reserves.

"Redevelopment" means the process of developing land that is or has been previously developed.

"Regional (watershed-wide) Stormwater Management Facility" or **"Regional Facility"** means a facility or series of facilities designed to control stormwater runoff from a specific watershed, although only portions of the watershed may experience development.

"Runoff" or **"stormwater runoff"** means that portion of precipitation that is discharged across the land surface or through conveyances to one or more waterways.

"Site" means the parcel of land being developed, or a designated planning area in which the land development project is located.

"State Waters" means all waters on the surface and under the ground wholly or partially within or bordering the Commonwealth or within its jurisdiction.

"Stop Work Order" means an order issued which requires that all land disturbing and construction activity on a site be stopped.

"Stormwater Detention Basin" or **"Detention Basin"** means a stormwater management facility which temporarily impounds runoff and discharges it through a hydraulic outlet structure to a downstream conveyance system. While a certain amount of outflow may also occur via infiltration through the surrounding soil, such amounts are negligible when compared to the outlet structure discharge rates and are, therefore, not considered in the facility's design. Since a detention facility impounds runoff only temporarily, it is normally dry during non-rainfall periods.

"Stormwater Extended Detention Basin" or **"Extended Detention Basin"** means a stormwater management facility which temporarily impounds runoff and discharges it through a hydraulic structure over a period of time to a downstream conveyance system for the purpose of water quality enhancement or stream channel erosion control. While a certain amount of outflow may also occur via infiltration through the surrounding soil, such amounts are negligible when compared to the outlet structure discharge rates and, therefore, are not considered in the facility's design. Since an extended detention basin impounds runoff only temporarily, it is normally dry during non-rainfall periods.

"Stormwater Management Facility" means a device that controls stormwater runoff and changes the characteristics of that runoff including, but not limited to, the quantity and quality, the period of release or the velocity of flow.

"Stormwater Management" (**SWM**) means the use of structural or non-structural practices that are designed to reduce storm water runoff pollutant loads, and/or peak flow discharge rates and control discharge volumes.

"Stormwater Management Plan" or **"Plan"** means a document containing material for describing how existing runoff and quality characteristics will be affected by a land development

project and methods for complying with the requirements of the local program. Best Management Practices are part of the Stormwater Management Plan.

"Stormwater Retention Basin" see Wet Pond.

"Stormwater Runoff" means flow on the surface of the ground, resulting from precipitation.

"Vegetated Buffer Area" is a nonstructural BMP option, most often used in conjunction with a structural BMP to handle non-point source stormwater pollution through the routing or diversion of runoff in sheet flow across the buffer area providing for removal of sediments, phosphorus, and other pollutants through filtration, infiltration, nutrient uptake by plants, and absorption. Longitudinal slopes should be less than five percent to reduce the potential for increased erosion. A Vegetated Buffer Area can be any type of plant material. A Vegetated Buffer Area is not required if upslope impervious areas are drained to the Stormwater Facilities through closed conduit storm sewer systems.

"Vegetated Filter Strip" means a densely vegetated section of land engineered to accept runoff as overland sheet flow from upstream development. It shall adopt any vegetated form, from grassy meadow to small forest. The vegetative cover facilitates pollutant removal through filtration, sediment deposition, infiltration and absorption, and is dedicated for that purpose. A vegetated buffer area is not the same as a vegetated filter strip.

"Watercourse" means a permanent or intermittent stream or other body of water, either natural or man-made, which gathers or carries surface water.

"Watershed" means a defined land area drained by a river, stream, drainage ways or system of connecting rivers, streams, or drainage ways such that all surface water within the area flows through a single outlet.

"Wet Pond or Retention Basin" ~~also known as a retention basin~~, is a man-made basin which contains a permanent pool of impounded water much like a lake or natural pond. The wet pond is designed to hold a permanent pool above which storm runoff is stored and released at a controlled rate. The release is regulated by an outlet device designed to discharge flows at various rates similar to the methods employed in an extended detention pond.

SECTION 203 Stormwater Management Program Permit Procedures and Requirements

203.1. Permit Required.

No land owner or land operator shall receive any of the building, grading or other land development permits required for land disturbance activities without first meeting the requirements of this Manual ~~prior to commencing the proposed activity.~~

Unless otherwise excepted by this Manual, an ~~approved~~ SWM plan must be ~~submitted~~ approved and accompanied by the following in order for a land disturbing permit ~~application~~ to be ~~considered~~ issued:

1. Stormwater management and BMP plan in accordance with Subsection 203.2;
2. Maintenance agreement in accordance with Subsection 203.4;

3. Performance ~~bond estimate~~ Guarantee in accordance with Subsection 203.5; and
4. Permit application and ~~Plan review~~ processing fee in accordance with Subsection 203.6.

203.2. Stormwater Management Plan Required.

No application for land development, land use conversion, or land disturbance, ~~or except~~ as otherwise excluded in this DSM, will be approved unless it includes a stormwater management plan, including Best Management Practices, as required by this Manual, detailing how runoff and associated water quality impacts resulting from the activity will be controlled or managed.

For subdivision development, ~~a~~ A stormwater management plan shall consist of a *concept plan* to ensure adequate planning for the management of stormwater runoff and quality control, and a *final plan*. Both plans shall be in accordance with the criteria established in this section.

~~No building, grading, or erosion and sediment control permit shall be issued until a satisfactory final stormwater management plan or a waiver thereof, shall have undergone a review and been approved by the Program Administrator after determining that the plan or waiver is consistent with the requirements of this Manual.~~

1. Stormwater Management/BMP Concept Plan

A stormwater management concept plan shall be required with all preliminary plan ~~and rezoning~~ applications, and will include all information from the SWM/BMP Preliminary/Concept Plan Checklist (see Checklist on the Community Development home page of the Fauquier County Website ~~appendix~~) to evaluate the environmental characteristics of the project site, the potential impacts of all proposed development of the site, both present and future, on the water resources, and the effectiveness and acceptability of the measures proposed for managing stormwater generated by the project site. A concept plan will not be required if a preliminary plan ~~or rezoning~~ is not required.

The concept plan should be prepared at the time of the preliminary plan or other early step in the development process to identify the type of stormwater management measures necessary for the proposed project. The intent of this conceptual planning process is to ensure adequate planning for management of stormwater runoff from future development. To accomplish this goal the following information shall be included in the concept plan:

A. A map (or maps) indicating the location of existing and proposed buildings, roads, parking areas, utilities and structural stormwater management. The map(s) will also clearly show proposed land use with tabulation of the percentage of surface area to be adapted to various uses; drainage patterns; locations of utilities, roads and easements; the general limits of clearing and grading. A written description of the site plan and justification of proposed changes in natural conditions may also be required.

B. Preliminary engineering analysis to show that the proposed stormwater management measures are capable of controlling runoff from the site in compliance with the text and specifications of this Manual.

C. A written or graphic inventory of the natural resources at the site and surrounding area as it exists prior to the commencement of the project and a description of the watershed and its relation to the project site. This description should include a discussion of soil conditions, forest cover, topography, wetlands, and other native vegetative areas on the site. Particular attention should be paid to environmentally sensitive features that provide particular opportunities or constraints for development.

2. Stormwater Management/BMP Final Plan

Following review of the stormwater management concept plan, and modifications to that plan as deemed necessary by the County, a final stormwater management plan must be submitted for approval.

All stormwater management plans shall be appropriately sealed and signed by a professional in adherence to all minimum standards and requirements pertaining to the practice of that profession in accordance with Chapter 4 (§ 54.1-400 et seq.) of Title 54.1 of the *Code of Virginia* and attendant regulations certifying that the plan meets all submittal requirements outlined in this Manual and is consistent with good engineering practice.

All stormwater management plans shall have BMP's.

The final stormwater management plan, in addition to the information from the concept plan, shall include all of the information required in the Major Site Plan or Construction Plan checklists (see [Checklist on the Community Development home page of the Fauquier County Website](#) ~~Chapter 1 appendix~~) and may also include the following:

A. Project Identifier

The name, address, and telephone number of all persons having a legal interest in the property and the parcel identification number of the property or properties affected.

B. Type 1 Soils Map or Preliminary Soils Report by a certified Professional Soils Scientist and Topographic Base Map

An appropriate scale of the current Type 1 Soils Map or Preliminary Soils Report prepared by a certified Professional Soils Scientist and topographic base map of the site which extends to the top of the drainage shed and a minimum of 200 feet beyond the limits of the proposed development and indicates existing surface water drainage including streams, ponds, culverts, ditches, and wetlands; current land use including all existing structures; locations of utilities, roads, and easements; and significant natural and manmade features not otherwise shown. Soils information from the "Interpretive Guide to the Soils of Fauquier County" shall be placed on the base map for each mapping unit. The source of topographic and soil map shall be stated. A drainage divide map shall be provided that identifies all offsite and onsite drainage patterns to the top of each drainage shed.

C. Calculations (See appendix for design guidelines)

Hydrologic and hydraulic design calculations for the pre-development and post-development conditions for the design storms specified in this Manual shall be submitted. Such calculations shall include (i) description of the design storm frequency, intensity and duration, (ii) time of concentration, (iii) Soil Curve Numbers or runoff coefficients, (iv) peak runoff rates and total runoff volumes for each watershed area, (v) infiltration rates, where applicable, (vi) culvert sizing, (vii) flow velocities, (viii) data on the increase in rate and volume of runoff for the specified design storms, and (ix) documentation of sources for all computation methods and field test results. (See Section 204.)

D. Soils Information

Geotechnical properties for the hydrologic and structural properties of soils, for all dam embankments exceeding 15 feet in height or 15 acre feet in impoundment capacity, shall be described in a geotechnical report and submitted to the County for review. The report shall include ~~borings~~ testing depth, sampling frequency and types and associated laboratory testing with results and conclusions and shall follow the criteria for Earthen Embankments in the Virginia Stormwater Management Handbook Manual.

Soil properties for infiltration facilities shall also conform to the guidance and specification outlined in the Virginia Stormwater Management Handbook Manual. Information shall include depth to rock, type of rock, depth to water table and permeability (in/hr) 3 feet below trench bottom. Information shall be provided by someone qualified to perform work.

E. Maintenance Plan

The design and planning of all stormwater management facilities shall include detailed maintenance procedures to ensure their continued function. These plans will identify the parts or components of a stormwater management facility that need to be maintained and the equipment and skills or training necessary.

F. Landscaping Plan

The applicant must present a detailed landscaping plan for BMP measures, describing the woody and herbaceous vegetative stabilization and management techniques to be used within and adjacent to the stormwater practice. The landscaping plan must also describe who will be responsible for the maintenance of vegetation at the site and what practices will be employed to ensure that adequate vegetative cover is preserved. This plan must be prepared by a qualified individual familiar with the selection of emergent and upland vegetation appropriate for the selected BMP.

~~G. Maintenance Agreement~~

~~The applicant must execute an easement and a Stormwater/BMP Maintenance Agreement binding on all subsequent owners of land served by an on site~~

~~stormwater management/BMP measure in accordance with the specifications of this Manual (see appendix). See also Subsection 203.4.~~

GH. Redevelopment

All redevelopment projects not served by an existing water quality BMP shall either reduce existing site impervious areas by 20% or implement water quality BMP's to reduce pre-redevelopment pollution loads of the existing site by 10%. Use the following formula:

$$10\% \text{ of existing impervious area} + 40\% \text{ of net increase of impervious} \\ \text{or} \\ 10\% \left(\frac{\text{ex. Imp.}}{\text{(total site A)}} \right) \times \left(\frac{\text{ex. Imp. "C"}}{\text{(total site "C")}} \right) + 40\% \left(\frac{\text{new Imp.}}{\text{(total site A)}} \right) \times \left(\frac{\text{new Imp. "C"}}{\text{(total site "C")}} \right) = \text{Total \% Removal Req.}$$

203.3 Plan Inactivity

Should a land-disturbing activity associated with an approved SWM plan in accordance with this section not begin within the 180-days following approval and plat recordation or cease for more than 180 days, the County may evaluate the existing approved erosion and sediment control plan and stormwater management plan to determine whether the plan still satisfies local program requirements and to verify that all design factors are still valid. If the authority finds the previously filed plan to be inadequate, a modified plan shall be submitted and approved prior to the resumption of land-disturbing activities, and a new performance bond shall be posted.

Any facility specifically designed to be regional in nature shall not be subject to the above criteria providing no modifications or changes to land use designations can be demonstrated.

203.4. Stormwater Facility Maintenance Agreements

Prior to the issuance of any permit that has a stormwater management facility, as one of the requirements of the permit, the applicant or owner of the site must execute a maintenance agreement that shall be binding on all subsequent owners of land served by the subsequent owners of land served by the stormwater management facility.

1. Maintenance activities shall not alter the design function of the facility from its original design unless approved by the County prior to the commencement of the proposed maintenance activity.

2. Maintenance Agreement

Maintenance of all stormwater management facilities shall be ensured through the creation of a formal maintenance agreement that must be approved by the County and recorded into the land record prior to final plat approval. The agreement shall identify by name or official title the person(s) responsible for carrying out the maintenance. Responsibility for the operation and maintenance of stormwater management facilities shall remain with the property owner and shall pass to any successor or owner. If portions of the land are to be sold, legally binding arrangements shall be made to pass the responsibility to successors in title.

The agreement shall provide that in the event that maintenance or repair is neglected, or the stormwater management facility becomes a danger to public health or safety, the County shall have the authority to perform the work and to recover the costs from the owner.

203.5 Performance Guarantee

The County shall require the submittal of a performance guarantee (cash escrow, letter of credit or such other acceptable legal arrangement) in accordance with Chapter 8 of this DSM prior to issuance of a permit in order to insure that the stormwater practices are installed by the permit holder as required by the approved stormwater management plan.

- ~~1. The amount of the installation performance guarantee shall be the total estimated construction cost of the stormwater management/BMP practices approved under the permit, plus 25%.~~
- ~~2. The performance guarantee shall contain forfeiture provisions for failure, after proper notice, to complete work within the time specified, or to initiate or maintain appropriate actions which may be required of the applicant in accordance with the approved stormwater management plan.~~
- ~~3. If the County takes such action upon such failure by the applicant, the County may collect from the applicant for the difference should the amount of the reasonable cost of such action exceed the amount of the security held.~~
- ~~4. The landscaping portion of the performance guarantee for the stormwater management/BMP plan shall be held for one year after installation in accordance with the final plans and specifications prior to final release.~~
- ~~5. These requirements are in addition to all other provisions of the County ordinances relating to the issuance of such plans and are not intended to otherwise affect the requirements for such plans.~~
- ~~6. The County reserves the right to re-evaluate the performance guarantee associated with any project for which an extension is requested to ensure that the performance guarantee adequately reflects current market conditions.~~

203.6. SWM/BMP Review Fees

Applicants shall submit a ~~review~~ fee to Fauquier County, or its designee as outlined in the Department of Community Development fee schedule in effect at the time of acceptance of the application.

203.7. SWM/BMP Final Plan Submittal ~~Review Application~~ Approval Conditions

1. Applications shall be made in conjunction with Major Site Plans, Construction Plans, and Infrastructure Plans and shall include the SWM/BMP checklist ~~include the following: one copy of the approved SWM/BMP concept plan, two copies of the stormwater management/BMP final plan, two copies of the maintenance agreement, the SWM/BMP checklist, and any required review fees.~~

~~2. Within 60 calendar days of the receipt of a complete application, including all documents as required by this Manual, the County shall inform the applicant whether the application and plan are approved or disapproved.~~

~~3. If the stormwater management plan is disapproved, the County shall communicate the decision to the applicant in writing. The applicant may then revise the stormwater management plan. If additional information is submitted, the County shall have 45 calendar days from the date the additional information is received to inform the applicant that the plan is either approved or disapproved.~~

~~2.4. If the final stormwater management plan and maintenance agreement are approved by the County, the following conditions apply~~ to the SWM/BMP component of approved plans:

A. The applicant shall comply with all applicable requirements of the approved plan and this Manual and shall certify that all land clearing, construction, land development and drainage will be done according to the approved plan.

B. The land development project shall be conducted only within the area specified in the approved plan.

C. The County shall be allowed to conduct periodic inspections of the project.

D. The person responsible for implementing the approved plan shall conduct monitoring to ensure compliance with the approved plan.

E. No changes may be made to an approved plan without review and written approval by the County.

F. The owner is responsible for maintaining certified construction logs, including performance as-builts surveys, and geotechnical inspections during subsurface or embankment construction and compaction activities as outlined in the Virginia Stormwater Management Handbook. The County may request this information for review.

SECTION 204 General Criteria for Stormwater Management

The following technical criteria shall be applied on all applicable land development and land conversion activities.

204.1 General

1. All development occurring within the County as specified in Section 201.3, shall provide stormwater management facilities and Best Management Practices adequate to reduce increased runoff rates and nonpoint source pollution, as outlined herein. The design shall include control of stream flow rates, water surface levels, and runoff rates. This does not preclude demonstration of compliance with Minimum Standard 19 and TB-1 as a method of quantity control.

2. Outflows from a stormwater management facility shall be discharged to an adequate channel, so as to provide a non-erosive velocity of flow from the basin to the channel.

~~3. All stormwater management facilities shall have a maintenance plan which identifies the owner and the responsible party for carrying out the maintenance plan.~~

~~4. Landscaping Plans Required~~

~~All stormwater management practices must have a landscaping plan detailing both the vegetation to be in the practice and how and who will manage and maintain this vegetation. This plan must be prepared by a qualified individual familiar with the selection of emergent and upland vegetation appropriate for the selected BMP.~~

~~5. Maintenance Agreements~~

~~A legally binding covenant specifying the parties responsible for the proper maintenance of all stormwater treatment practices shall be secured prior to issuance of any permits for land disturbance activities.~~

204.2 Water Quality

General Policy for BMP and Stormwater Quality:

1. All development or redevelopment occurring within the County shall incorporate water quality measures (Best Management Practices). Water Quality Design shall be in accordance with the Virginia Stormwater Management Handbook. Innovative new technologies may be considered on a case by case basis as approved by the Program Administrator. Support material documenting the effectiveness of the proposed new technology is required.

~~2. The current edition of the Northern Virginia BMP Handbook, prepared by the Northern Virginia Planning District Commission (NVPDC), shall be used in the design and review of BMP facilities using the Ocoquan Method. Other design criteria may be used solely at the discretion of the program administrator. Sufficient support material to document the methodology will be required (see appendix).~~

~~3~~2. All point-source stormwater runoff generated from new development shall not be discharged into a jurisdictional wetland or local water body without adequate treatment.

204.3 Insect Management

The design of all Stormwater Management and Best Management Practice Systems should incorporate measures to reduce the probability of mosquito breeding. These measures should be consistent with the most current guidelines and/or policies of all applicable governing agencies including, but not limited to, the Virginia Department of Conservation and Recreation (DCR), the Northern Virginia Planning District Commission, local and state Health Departments and the Department of Environmental Quality (DEQ).

SECTION 205 Construction Inspection

All stormwater management construction inspections shall utilize the final approved plans and specifications for compliance. In addition, the inspection shall comply with the latest version of

the Erosion and Sediment Control Regulations, promulgated pursuant to Article 4 (§ 10.1-566) of Chapter 5 of Title 10.1 of the *Code of Virginia*.

If the County determines that there is a failure to comply with the plan, notice shall be served upon the permittee or person responsible for carrying out the plan in accordance with Subsection 207 of the DSM.

205.1. Post-Construction Final Inspection and As-Built Plans

1. If embankment height exceeds 15 feet or the impoundment capacity exceeds 15 acre feet, the applicant will be required to submit evidence of geotechnical inspections conducted during embankment construction.
2. All applicants are required to submit “as built” plans and analysis for any stormwater management practices located on-site after final construction is completed. The plan must show the final design specifications for all stormwater management facilities and routing through the as-built condition, and must be certified by a professional engineer. A final inspection by the County is required before the release of any performance guarantee can occur. As-built analysis must meet or exceed the approved performance of each facility.

SECTION 206 Maintenance Inspection and Repair of Stormwater Facilities

206.1. Maintenance Inspection of Stormwater Facilities

To ensure proper performance of the stormwater facility, the property owner or owner’s association is responsible for inspecting the stormwater management facility in accordance with the approved maintenance plan and the stormwater management design manual. The responsible party shall keep written records of inspections and make them available to the County upon request.

In the event that the stormwater management facility has not been maintained, or has been damaged, and/or becomes a danger to public safety or public health, the County shall notify the person responsible for carrying out the maintenance plan by registered or certified mail to the address of the owner of record. The owner shall be required to provide an inspection of the facility, by a person qualified to perform such inspection. If the responsible party fails or refuses to correct deficiencies, to meet the requirements of the maintenance agreement, the County after reasonable notice, may correct a violation of the design standards or maintenance needs by performing all necessary work to place the facility in proper working condition, and recover the costs from the owner.

SECTION 207 Enforcement and Penalties

207.1. Notice of Violation

When the Program Administrator determines that an activity is not being carried out in accordance with the requirements of this Manual, a written notice of violation shall be delivered by registered or certified mail to the applicant of record for the activity. Each calendar day of an activity conducted in violation of this Manual shall constitute a separate violation, but may be covered by one Notice of Violation. The notice of violation shall contain:

1. The name and address of the property owner;

2. The address when available or a description of the building, structure or land upon which the violation is occurring;
3. A statement specifying the nature of the violation;
4. A description of the remedial measures necessary to bring the development activity into compliance with this Manual and a time schedule for the completion of such remedial action;
5. A statement of the penalty or penalties that shall or may be assessed against the person to whom the notice of violation is directed;
6. A statement that the determination of violation may be appealed to the municipality by filing a written notice of appeal within thirty (30) days of service of notice of violation.

207.2. Stop Work Orders

Persons receiving a notice of violation will be required to halt all construction activities. This “stop work order” will be in effect until the County confirms that the development activity is in compliance and the violation has been satisfactorily addressed. Upon failure to comply within the time specified, the permit may be revoked and the applicant shall be deemed to be in violation of this article and upon conviction shall be subject to the penalties provided by this Manual.

207.3. Civil and Criminal Penalties

Any person who violates any provision of a local ordinance or program adopted pursuant to the authority of this article shall be guilty of a Class 1 misdemeanor and shall be subject to a fine not exceeding \$1,000 or up to thirty days imprisonment for each violation or both. Each calendar day during which the activity occurs, or day during which required conditions are not met or standards are violated shall constitute a separate violation. In addition, the County may pursue the following actions:

1. The County may apply to the Fauquier County Circuit Court to enjoin a violation or a threatened violation of the provisions of this Manual without the necessity of showing that an adequate remedy at law does not exist.
2. Without limiting the remedies which may be obtained in this section, the County may bring a civil action against any person for violation of this Manual or any condition of a permit. The action may seek the imposition of a civil penalty not more than \$2,000 against the person for each violation.
3. With the consent of any person who has violated or failed, neglected or refused to obey this Manual or any condition of a permit, the County may provide, in an order issued by the County against such person, for the payment of civil charges for violations in specific sums, not to exceed the limit specified in Subsection 207.3.2 of this Manual. Such civil charges shall be instead of any appropriate civil penalty which could be imposed under Subsection 207.

207.4. Holds on Occupancy Permits

Occupancy permits shall not be granted until corrections to all stormwater practices have been made in accordance with the approved plans, Notice of Violation, Stop Work Order, or Permit requirements, and accepted by the County.

SECTION 208 Erosion & Sediment Control Requirements

An Erosion and Sediment Control Plan shall be prepared in accordance with Chapter 11 of the Fauquier County Code as presented herein ~~(see appendix)~~. Sections are DSM Section numbers / Fauquier County Code Section numbers. This Ordinance shall be known as the “Fauquier County Erosion and Sediment Control Ordinance.”

208.1. / 11.1. Purpose of section.

The purpose of this section is to conserve the land, water, air and other natural resources of the County and to promote public health and welfare of the people in the County by establishing requirements for the control of erosion and sedimentation, and by establishing procedures whereby these requirements shall be administered and enforced.

208.2. / 11.2. Definitions.

For the purposes of this section, the following words and phrases shall have the meanings respectively ascribed to them for Sections 208 and A208:

“Administrator”: A representative of the Fauquier County Board of Supervisors who has been appointed to serve as an agent of the Board of Supervisors in administering this section.

“Agreement in lieu of a plan”: means a contract between the Plan-approving authority and the owner that specifies conservation measures that must be implemented in the construction of a single-family residence; this contract may be executed by the Plan-approving authority in lieu of a formal site plan.

“Applicant”: Any person submitting an erosion and sediment control plan for approval or requesting the issuance of a permit, when required, authorizing land disturbing activities to begin.

“Board or Virginia Soil and Water Conservation Board”: The agency created in Title 10.1 of the *Code of Virginia*.

“Clearing”: Any activity which removes the vegetative ground cover, including but not limited to, root mat removal or topsoil removal.

“Construction plan, erosion and sediment control plan or plans”: A document containing material for the conservation of soil and water resources of a unit or group of units of land. It may include appropriate maps, an appropriate soil and water plan inventory and management information with needed interpretations, and a record of decisions contributing to conservation treatment. The plans shall contain all major conservation decisions to assure that the entire unit or units of land will be so treated to achieve the conservation objectives. The plan shall consist of, as a minimum, a written document detailing the necessary erosion and sedimentation control measures and the timing of their installation, as well as scale drawings indicating the character, scope, and limits of land disturbing activities on the unit or units of land, and the locations of the

conservation measures. These locations may be shown on the site plan or construction drawings for the project with which the land disturbing activity is related.

“Conservation standard or standards”: The criteria, guidelines, techniques and methods for the control of erosion and sedimentation found in Chapter 3 of the current edition of the Virginia Erosion and Sediment Control Handbook, as amended.

“Department”: The Department of Conservation and Recreation.

“Department of Community Development”: The Fauquier County Department of Community Development.

“District or Soil and Water Conservation District”: A governmental subdivision of the state, and a public body corporate and politic, organized in accordance with the provisions of the Soil Conservation Districts Law, Title 10.1, Chapter 5, Article 4, *Code of Virginia*, as amended.

“Excavating”: Any digging, scooping, or other methods of removing earth materials.

“Grading”: Any excavating or filling of earth materials or any combination thereof, including the land in its excavated or filled condition.

“Land disturbing activity”: Any land change which may result in soil erosion from water or wind and movement of sediments into state waters or onto lands in the state, including, but not limited to, clearing, grading, excavating, transporting and filling of land, except that the term shall not include:

- (1) Such minor land disturbing activities as home gardens and individual home landscaping, repairs and maintenance work;
- (2) Individual service connections;
- (3) Installation, maintenance, or repair of any underground public utility lines when such activity occurs on an existing hard surfaced road, street or sidewalk, provided such land disturbing activity is confined to the area of the road, street or sidewalk which is hard surfaced;
- (4) Septic tank lines or drainage fields unless included in an overall plan for land disturbing activity relating to construction of the building to be served by the septic tank system;
- (5) Surface or deep mining;
- (6) Exploration or drilling for oil and gas, including the well site, roads, feeder lines, and off-site disposal areas;
- (7) Tilling, planting, or harvesting of agricultural, horticultural, or forest crops, or livestock feedlot operations; including engineering operations as follows: construction of terraces, terrace outlets, check dams, desilting basins, dikes, ponds, ditches, strip cropping, lister furrowing, contour cultivating, contour furrowing, land drainage and land irrigation; however, this exception shall not apply to harvesting of forest crops unless the

area on which harvesting occurs is reforested artificially or naturally in accordance with the provisions of Chapter 11 (§ 10.1-1100 et seq.) of the *Code of Virginia* or is converted to bona fide agricultural or improved pasture use as described in subsection B of *Code of Virginia* § 10.1-1163;

(8) Repair or rebuilding of the tracks, right-of-way, bridges, communication facilities and other related structures and facilities of a railroad company;

(9) Agricultural engineering operations including, but not limited, to the construction of terraces, terrace outlets, check dams, desilting basins, dikes, ponds not required to comply with the provisions of the Dam Safety Act, Article 2 (§ 10.1-604 et seq.) of Chapter 6 of the *Code of Virginia*, ditches, strip cropping, lister furrowing, contour cultivating, contour furrowing, land drainage and land irrigation;

(10) Disturbed land areas of less than ten thousand (10,000) square feet in size, unless an erosion and sediment control plan is required by the terms of any other state or county ordinance or regulation;

(11) Installation of fence and sign posts or telephone and electric poles and other kinds of posts or poles;

~~(12) Shoreline erosion control projects on tidal waters when all of the land disturbing activities are within the regulatory authority of and approved by local wetlands boards, the Marine Resources Commission or the United States Army Corps of Engineers; however, any associated land that is disturbed outside of this exempted area shall remain subject to this article and the regulations adopted pursuant thereto; and~~

(13~~2~~) Emergency work or repairs necessary to protect life, limb, or property; provided that if the land disturbing activity would have required an approved erosion and sediment control plan, if the activity were not an emergency, then the land area disturbed shall be shaped and stabilized in accordance with the requirement of the local Plan-approving authority or the board where applicable. Emergency work or repairs will be reported to, and a land disturbing permit obtained from, the Department of Community Development, not later than the second working day following commencement of the work.

“Land disturbing permit”: A permit issued by the County for clearing, filling, excavating, grading or transporting, or any combination thereof, on all lands except those lands privately owned, occupied or operated for agricultural, horticultural or forestal purposes as defined in Subsection 208.4.

“Local erosion and sediment control program or local control program”: An outline or explanation of the various elements or methods employed by Fauquier County to regulate land disturbing activities and thereby minimize erosion and sedimentation in compliance with the state program, and including such items as the Fauquier County Erosion and Sediment Control Ordinance, the Fauquier County Design Standards Manual, policies and guidelines, technical materials, inspection, enforcement and evaluation.

“Other Qualified Entity”: An individual or firm with the experience and certifications, and hired under contract with Fauquier County, to perform the required work.

“Owner”: The owner or owners of the freehold of the premises or lesser estate therein, including a mortgagee or vendee in possession, assignee of rents, receiver, executor, trustee, lessee or other person, firm or corporation in control of a property.

“Permittee”: The person to whom the permit authorizing land disturbing activities is issued or the person who certifies that the approved erosion and sediment control plan will be followed.

“Person”: Any individual, partnership, firm, association, joint venture, public or private corporation, trust, estate, commission, board, public or private institution, utility, cooperative, county, city, town, or other political subdivision of the commonwealth, any interstate body, or any other legal entity.

“Plan-approving authority”: The Department of Community Development is the Plan-approving authority for conservation plans submitted for land disturbing activities on a unit or units of land in the County. The John Marshall Soil and Water Conservation District shall be offered the opportunity to comment on all such plans prior to their approval.

“Program Administrator”: means the County Administrator or his designee.

“Stabilization”: For the purpose of this section, stabilization is defined as ninety (90) percent permanent ground cover established to a height of two (2) inches and having survived for twelve (12) months without need of replanting or repair. The ninety (90) percent shall be equally distributed over the entire project area, with no evident bare spots.

“State erosion and sediment control program or state program”: The program adopted by the Board, consisting of conservation standards, guidelines and criteria to minimize erosion and sedimentation.

“State waters”: All waters on the surface and under the ground wholly or partially within or bordering the Commonwealth or within its jurisdiction.

“Subdivision”: The provisions of Section 2-39 of the subdivision ordinance of the County pertaining to the definition of subdivision within the County, are hereby adopted and incorporated mutatis mutandis in this section by reference.

“Town”: An incorporated town.

“Transporting”: Any moving of earth materials from one place to another, other than such movement incidental to grading, when such movement results in destroying the vegetative ground cover either by tracking or the buildup of earth materials to the extent that erosion and sedimentation will result from the soil or earth materials over which such transporting occurs.

208.3. / 11.3. Local program generally.

(see [Checklist on the Community Development home page of the Fauquier County Website](#) ~~appendix for checklist and technical bulletins~~).

- (a) For the purpose of Section 208, the program authority and the Plan-approving authority shall be the Fauquier County Department of Community Development. Inspection responsibilities shall be fulfilled by the John Marshall Soil and Water Conservation District, ~~and/or~~ the Fauquier County Department of Community

Development and/or other qualified entity. Erosion and sediment control plans submitted for approval to the Department of Community Development under this section shall:

- (1) be prepared in accordance with Chapters 3 and 4 of the Virginia Erosion and Sediment Control Handbook, Third Edition, 1992, as amended and the Virginia Erosion and Sediment Control Regulations, 1990, as amended. The use of the engineering calculations and standard proactive indications provided in Chapters 2 and 5 of said handbook is recommended; and
 - (2) contain the elements listed and explained in Chapter 6 of the Virginia Erosion and Sediment Control Handbook, Third Edition, 1992, as amended.
- (b) ~~The John Marshall Soil and Water Conservation District and the Department of Community Development~~ plan-approving authority shall be guided by the standards and the criteria set forth in the current edition of the Virginia Erosion and Sediment Control Handbook, Third Edition, 1992, as amended, and the Virginia Erosion and Sediment Control Regulations, 1990, as amended, in considering the adequacy of plans submitted for approval.
- (c) The issuance of a land disturbing permit under the provisions of this section shall not guarantee or vest the property owner with the right to receive any other administrative or legislative permit approval required for the use of the property which is the subject of the land disturbing permit.

208.4. / 11.4. Regulation of land disturbing activities.

Except as provided in (1), (2), (3), and (4) of this section, no person shall engage in any land disturbing activity until he has received a land disturbing permit based upon an erosion and sediment control plan approved by the Department of Community Development. The preparation, submission, and approval of an erosion and sediment control plan shall be the responsibility of the owner.

- (1) Any person who owns, occupies, or operates private land for agricultural, horticultural or forestal purposes shall not be deemed in violation of this section for land disturbing activities which result from the tilling, planting or harvesting of agricultural, horticultural or forest crops or products or engineering operations such as the construction of terraces, terrace outlets, check dams, desilting basins, floodwater retarding structures, channel improvements, floodways, dikes, ponds, ditches, and the like; the utilization of strip cropping, lister furrowing, contour cultivating, and contour furrowing; land drainage; land irrigation; seeding and planting of waste, sloping abandoned, or eroded lands to water-conserving and erosion-preventing plants, trees and grasses; forestation and reforestation; rotation of crops; soil stabilization with trees, grasses, legumes, and other thick growing, soil holding crops; retardation of runoff by increasing absorption of rainfall; and retirement from cultivation of steep, highly erosive areas and areas now badly gullied or otherwise eroded. Any person who owns, occupies, or operates private agricultural, horticultural or forest lands shall comply with the requirements of this section wherever that person proposes to conduct grading, excavating or filling operations, except as expressly exempted by this section.
- (2) Any state agency that undertakes a project involving a land disturbing activity. A state agency shall not undertake a project involving a land-disturbing activity unless (i)

the state agency has submitted annual specifications for its conduct of land-disturbing activities which have been reviewed and approved by the Department as being consistent with the state program or (ii) the state agency has submitted a conservation plan for the project which has been reviewed and approved by the Department.

(3) Any person whose land disturbing activities involve lands which extend into the jurisdiction of another local erosion and sediment control program; provided, such person has a plan approved by the Virginia Soil and Water Conservation Board. Such persons shall, however, comply with the requirements of this section regarding the provision of a performance bond with surety, cash escrow, letter of credit, any combination thereof, or such other arrangement as is acceptable to the Department of Community Development.

(4) Electric, natural gas and telephone utility companies, interstate and intrastate natural gas pipeline companies and railroad companies shall file general erosion and sediment control specifications annually with the Board for review and approval. The specifications shall apply to:

- a. Construction, installation or maintenance of electric transmission, natural gas and telephone utility lines and pipelines; and
- b. Construction of the tracks, rights-of-way, bridges, communication facilities and other related structures and facilities of the railroad company.

The Board shall have 60 days in which to approve the specifications. If no action is taken by the Board within 60 days, the specifications shall be deemed approved. Individual approval of separate projects within subdivisions 1 and 2 of this subsection is not necessary when approved specifications are followed. Projects not included in subdivisions 1 and 2 of this subsection shall comply with the requirements of the appropriate local erosion and sediment control program. The Board shall have the authority to enforce approved specifications.

208.5. / 11.5. Action on erosion and sediment control plan.

(a) The Department of Community Development shall, within forty-five (45) days of submission, approve any erosion and sediment control plans if it determines that the plan meets the conservation standards of the local control program and if the applicant certifies that he will properly perform the erosion and sediment control measures included in the plan and comply with the provisions of this section, provided, however, plans submitted as part of applications for the approval of subdivisions or site plans may, at the request of the applicant, be subject to the time limits applicable to the subdivision or site plan application, so that modifications required as a result of the subdivision or site plan process can be made. Where a plan is submitted as part of an application for approval of a subdivision or site plan and the applicant does not request that it be reviewed subject to the time limit applicable to the subdivision or site plan application, such plan shall be reviewed and acted upon within forty-five (45) days, provided, however, where changes or modifications to the plan are required as a result of the subdivision or site plan process, the applicant shall submit the modification which shall be considered a new application for approval and shall be acted upon by the Department of Community Development within forty-five (45) days of the submission. The approval

of any plan submitted with a subdivision or site plan application, but acted upon separately, shall not act to vest or grandfather the plan where modifications are required as part of the subdivision or site plan process.

(b) Disapproval of any plan shall be in writing and give the specific reasons for its disapproval. When a plan submitted for approval pursuant to this section is found to be inadequate, the Department of Community Development shall specify such modifications, terms, and conditions as will permit approval of the plan and shall communicate these requirements to the applicant. If no action is taken by the Department of Community Development within the time specified in subsection (a), the plan shall be deemed approved and the person shall be authorized to proceed with the proposed activity.

(c) An approved plan may be modified by the Department of Community Development in the following cases:

(1) Where inspection has revealed that the plan is inadequate to satisfy applicable regulations; or

(2) Where the permittee finds that because of changed circumstances the approved plan cannot be effectively implemented, and proposed amendments to the plan, consistent with the requirements of this section, are agreed to by the Department of Community Development.

208.6. / 11.6. Applications for land disturbing permit; fees.

(a) Application for land disturbing permits shall be made to the Department of Community Development on forms, as specified by the Department of Community Development, and shall include five (5) copies of an erosion and sediment control plan prepared in accordance with this section, and the required fee.

(b) The person responsible for carrying out the plan shall provide the name of an individual holding a certificate of competence as provide by Section 10.1-561 of the *Code of Virginia*, 1950, as amended, who will be in charge of and responsible for carrying out the land disturbing activity.

(c) The Board of Supervisors shall establish from time to time a schedule of fees for the review and approval or disapproval of erosion and sediment control plans and the issuance of land disturbing permits. Such fees shall be paid to the Treasurer, Fauquier County, at the time of filing such plans or, if no plan is required, upon the issuance of the land-disturbing permit.

208.7. / 11.7. Approved plan required for issuance of permits; certification; performance guarantee.

(a) The Department of Community Development shall not issue any land disturbing, building, zoning or site plan permits or subdivision approval for activities which involve land disturbing unless the applicant therefore submits with his application the approved erosion and sediment control plan or certification of such approved plan from the Department of Community Development, and certification that the plan will be followed. ~~In addition, as a prerequisite to engaging in the land disturbing activities shown on the~~

~~approved plan, the person responsible for carrying out the plan shall provide the name of an individual holding a certificate of competence to the Department of Community Development, as provided by Code of Virginia § 10.1-561, who will be in charge of and responsible for carrying out the land disturbing activity.~~

(b) Where the land-disturbing activity results from the construction of a single-family residence, an agreement in lieu of a plan may be substituted for an erosion and sediment control plan if executed by the Department of Community Development. The Department of Community Development may waive the certificate of competence requirement for an agreement in lieu of a plan for construction of a single family residence. If a violation occurs during the land-disturbing activity, then the person responsible for carrying out the agreement in lieu of a plan shall correct the violation and provide the name of an individual holding a certificate of competence, as provided by *Code of Virginia* § 10.1-561. Failure to provide the name of an individual holding a certificate of competence prior to engaging again in land-disturbing activities may result in revocation of the approval of the plan and the person responsible for carrying out the plan shall be subject to the penalties in accordance with Title 10.1, Chapter 5 of the *Code of Virginia*.

(c) The Department of Community Development shall, prior to the approval of any application for subdivision or site plan, or the issuance of any grading, land disturbing, building or other permit, require from any applicant a reasonable performance guarantee with surety, cash escrow, letter of credit, any combination thereof, or such other legal arrangement as is acceptable to the Department of Community Development to ensure that measures could be taken by the County at the applicant's expense should he fail, after proper notice, within the time specified to initiate or maintain appropriate conservation measures which may be required of him as a result of his land disturbing activity.

If the County takes such conservation action upon such failure by the permittee, the County may collect from the permittee any costs in excess of the amount of security held.

Within sixty (60) days of the achievement of adequate stabilization of the land disturbing activity, as determined by the Department of Community Development, such bond, cash escrow, letter of credit, or other legal arrangement, or the unexpended or unobligated portion thereof, shall be refunded to the applicant or terminated, as the case may be. No land disturbing activity will be deemed completed until all permanent conservation measures are established.

The requirement of any performance guarantee may be waived by the Director of the Department of Community Development if ~~he~~ it is ~~determines~~d that the application of such a requirement would impose an unnecessary hardship on the applicant or would be of an insignificant amount. In determining whether to waive any performance guarantee, the Director shall consider the applicant's prior performance in implementing other plans. Any applicant who is aggrieved by the denial of a request for such a waiver may appeal the denial to the Program Administrator who has the authority to affirm the Director's decision or reverse the decision and grant a waiver.

(d) Except as provided in Subsection (e) below, no land-disturbing permit shall be issued pursuant to this section prior to one of the following as applicable:

- (1) Infrastructure plan approval as required by the Zoning Ordinance, or;
- (2) Site plan approval as required by the Zoning Ordinance; or

- (3) Final construction plan approval as required by the Subdivision Ordinance.
- (e) The Department of Community Development may approve and issue a land-disturbing permit for early grading activities (hereinafter termed Early Grading Permit) in accordance with a Board of Supervisor's-adopted administrative policy to facilitate development of commercial, industrial and governmental projects. Application may occur under one of the following circumstances:
 - (1) A major site plan for development of the property is currently under review, or;
 - (2) An infrastructure plan, with an approved plan of development, is currently under review for the full design of infrastructure associated with a given project, and a Type 1 Soil Survey has been performed for the entire development site.

An Early Grading Permit will be limited to those elements shown on the approved Phase 1 and/or Phase 1A erosion and sediment control plan, and shall include a contingency site stabilization plan (Phase 1A). The approved plan may include site clearing and grading, open-ended culverts to facilitate positive drainage, temporary sediment trapping devices for erosion and sediment trapping devices for erosion and sediment control, temporary and permanent stabilization, and retaining walls associated with necessary cut and fill operations. An Early Grading Permit shall not include utility installation. A separate building permit for any retaining walls, if required, shall be obtained prior to construction activity. If applicable, any required floodplain studies shall be completed and approved, and any required federal and state permits shall be obtained prior to the issuance of an Early Grading Permit. (For the Administrative Policy see Appendix A208.7(e)).

- (f) The requirements of this section are in addition to all other provisions of law which relate to the issuance of such permits and shall not be construed to otherwise affect the requirements of such permits.

208.8. / 11.8. Monitoring, reports, and inspections.

- (a) The Department of Community Development shall ensure that the land disturbing activity is inspected periodically in accordance with those procedures set forth in the Virginia Erosion and Sediment Control Handbook, Third Edition, 1992, as amended, and the Virginia Erosion and Sediment Control Regulations, 1990, as amended, to ensure compliance with the approved plan and to determine whether the measures required in that plan are effective in controlling erosion and sedimentation resulting from the land disturbing activity. Assistance in inspecting such activities will be provided by County building inspectors and officials; ~~and the John Marshall Soil and Water Conservation District;~~ and/or other qualified entity. The right-of-entry to conduct such inspection shall be expressly reserved in the permit and notice of inspection shall be given to the permittee.
- (b) The Department of Community Development may require monitoring and reports from the permittee to ensure compliance with the approved plan and to determine whether the measures required in the plan are effective in controlling erosion and

sedimentation. The Department of Community Development shall determine the content, the required number of reports and frequency for each project during the plan approval process upon recommendation of the plan review agency. Failure to submit the required reports will constitute a violation of the plan.

(c) If the Department of Community Development determines that the permittee has failed to comply with the plan, the Department of Community Development shall immediately serve a notice to comply upon the permittee, by registered or certified mail, to the address specified by the permittee in his permit application or by delivery at the site of the permitted activities to the agent or employee of the permittee supervising such activities. Such notice shall set forth specifically the measures needed to comply with such plan and shall specify the time within which such measures shall be completed.

If the permittee fails to comply within the time specified in the notice to comply, the Department of Community Development may take action to incur liability against the permit holder's performance bond, letter of credit, cash escrow, or other instrument to implement the needed conservation measures. Failure to implement the actions required in the notice to comply, shall be deemed to be a violation of this section and, in addition the penalties specified in this section, may result in the revocation of the permit.

208.9. / 11.9. Administrative appeal; judicial review.

(a) Any applicant under the provisions of this Ordinance who is aggrieved by any action of the Department of Community Development in disapproving plans submitted or revoking any permit issued pursuant to this Ordinance, shall have the right to apply for and receive a review of such action by the Program Administrator, provided an appeal is filed within thirty (30) days from the date of any such written decision. Any applicant who seeks an appeal hearing before the Program Administrator shall be heard within thirty (30) days from receiving a written request for such hearing. In reviewing the actions of the Department of Community Development, the Program Administrator shall consider evidence and opinions presented by the aggrieved applicant and the Department of Community Development. After considering the evidence and opinions, the Program Administrator may affirm, reverse or modify the action. The Program Administrator's decision shall be final, subject only to review by the Fauquier County Circuit Court as provided in (b) below.

(b) Final decisions of the Program Administrator under this Ordinance shall be subject to review by the Fauquier County Circuit Court, provided an appeal is filed within thirty (30) days from the date of the final written decision of the Program Administrator which adversely affects the rights, duties or privileges of the person engaging in or proposing to engage in land disturbing activities.

208.10. /11.10. Penalties, injunctions and other legal actions.

(a) A violation of this Ordinance shall be deemed a Class 1 misdemeanor.

(b) The Commonwealth's Attorney shall, upon request of the Program Administrator or the Department of Community Development, take legal action to enforce the provisions of this Ordinance.

(c) In addition to any criminal penalties provided under this Ordinance, any person who violates any provision of this Ordinance may be liable to Fauquier County in a civil action for damages.

(d) The Program Administrator, or the owner of property which has sustained damage or which is in imminent danger of being damaged, may apply to the Fauquier County Circuit Court to enjoin a violation or a threatened violation of this Ordinance, without the necessity of showing that there does not exist an adequate remedy at law.

However, an owner of property shall not apply for injunctive relief unless (i) he has notified in writing the person who has violated this Ordinance, and the Department of Community Development, that a violation of this Ordinance has caused, or creates a probability of causing, damage to his property, and (ii) neither the person who has violated this Ordinance nor the Department of Community Development has taken corrective action within fifteen (15) days to eliminate the conditions which have caused, or create the probability of causing, damage to his property.

(e) Without limiting the remedies which may be obtained under this section, any person violating or failing, neglecting, or refusing to obey any injunction, mandamus or other remedy obtained pursuant to this section shall be subject, in the discretion of the Court, to a civil penalty not to exceed \$2000 for each violation. A civil action for such violation or failure may be brought by the Fauquier County Board of Supervisors.

Any civil penalties assessed by the Court shall be paid into the treasury of Fauquier County.

(f) Upon receipt of a sworn complaint of a violation of the Fauquier County Erosion and Sediment Control Ordinance from the Department of Community Development; ~~or the John Marshall Soil and Water Conservation District;~~ and/or other qualified entity, the Program Administrator may, in conjunction with or subsequent to a notice to comply as specified in Section 208.8, issue a stop work order requiring that all or part of the land activities permitted on the site be stopped until the specified corrective measures have been taken. If land disturbing activities have commenced without an approved plan as provided in Section 208.7, such order shall require that all land disturbing activities be stopped until an approved plan or any required permits are obtained.

Where the alleged noncompliance is causing or is in imminent danger of causing harmful erosion of lands or sediment deposition in the watersheds of the Commonwealth, or where the land disturbing activities have commenced without an approved plan or any required permits, such an order may be issued without regard to whether the owner or permittee has been issued a notice to comply.

For permitted sites, the stop work order shall be served by registered or certified mail to the address specified by the permittee in his permit application or by delivery at the site of the permitted activities to an agent or employee of the permittee supervising such activities. For activities that commenced without an approved plan, the stop work order shall be served by registered or certified mail to the address of the owner of the property as found in the tax records of Fauquier County or by delivery at the site of the activities to a person who is conducting or supervising the activities. The stop work order shall remain in effect for a period of seven (7) days from the date of service pending application by the enforcing authority or permit holder for appropriate relief to the Circuit Court of Fauquier County. Immediately upon receipt, this order shall be posted by the recipient at the main entrance to the site, or at the construction entrance if different. Failure to post the order shall be deemed a separate offense under this Ordinance.

If the alleged violator has not obtained an approved plan or any required permits within seven (7) days from the date of service of the first stop work order, the Program Administrator may issue a final stop work order to the owner requiring that all construction and other work on the site, other than corrective measures, be stopped until an approved plan and any required permits have been obtained. Such an order shall be served upon the owner by registered or certified mail to the address specified in the permit application or the land records of the locality in which the site is located. Immediately upon receipt, this order shall be posted by the recipient at the main entrance to the site, or at the construction entrance if different. Failure to post the order shall be deemed a separate offense under this Ordinance.

The owner may appeal the issuance of an order to the Fauquier County Circuit Court.

Any person violating or failing, neglecting or refusing to obey an order issued by the Program Administrator may be compelled in a proceeding instituted in the Fauquier County Circuit Court to obey same and to comply therewith by injunction, mandamus or other appropriate remedy. Upon completion and approval of corrective action by the Department of Community Development, or obtaining an approved plan or any required permits, the order shall be immediately lifted.

Nothing in this section shall prevent the Department of Community Development, Program Administrator or Fauquier County Board of Supervisors from taking any other action authorized by this Ordinance.

Stormwater Management Appendix

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A201.8 General Drainage Requirements

1. The specified design storms shall be defined as either a 24-hour storm using the rainfall distribution recommended by the ~~U.S. Soil Conservation Service~~ Natural Resources Conservation Service (NRCS) when using ~~U.S. Soil Conservation Service NRCS~~ methods, or as the storm of critical duration that produces the greatest required storage volume at the site when using a design method such as the Modified Rational Method. Pre-development and post-development runoff rates for the 2-, 10-, and 100-year storms shall be verified by calculations that are consistent with ~~sound~~ good engineering practices.

~~SCS NRCS~~ Hydrology. ~~SCS NRCS~~ Hydrology consists of Technical Release Number 20 (TR-20) and Technical Release Number 55 (TR-55) including the COE HEC-1/HEC-HMS software, and other ~~SCS NRCS~~ applications. This hydrology is preferred and acceptable for all Stormwater Management and Floodplain analyses. ~~Other Hydrologic Methods. It is recognized that there are many hydrologic methods available, especially in the form of computer software.~~ Other hydrologic methods may be approved by the Program Administrator for specific applications provided it is demonstrated that the alternatives are appropriate for the purpose intended. All Floodplain Studies to be submitted to FEMA shall be prepared utilizing ~~SCS NRCS~~ Hydrology unless otherwise approved by the Program Administrator.

2. For purposes of computing runoff, all pervious lands in the site shall be assumed prior to development to be in good condition (if the lands are pastures, lawns, or parks), with good cover (if the lands are woods), or with conservation treatment (if the lands are cultivated); regardless of conditions existing at the time of computation.

3. Impounding structures that are not covered by the Impounding Structure Regulations (4 VAC 50-20-10 et seq.) shall be engineered for structural integrity during the 100-year storm event.

~~4. Pre-development and post-development runoff rates shall be verified by calculations that are consistent with good engineering practices.~~

~~45.~~ Residential lots in which lot size is less than thirty thousand (30,000) square feet shall be graded in such a manner that surface runoff does not cross more than two (2) lots before it is collected in a storm sewer system or designed stormwater conveyance channel. All surface drainage must be contained in an adequate easement once it is discharged from the third residential lot. ~~Any concentrated stormwater must be contained in an adequate easement.~~

5. Any area which is inundated by water ponding at a yard inlet and culverts during the 10-year storm event shall be within a storm drainage easement.

~~6. Hydrologic and hydraulic design calculations to demonstrate 10-year overland relief, with the storm sewer system plugged, shall be provided. Calculations for additional overlot drainage practices, shall be provided, when required by the County Engineer. In all Service Districts, drainage systems shall be designed to provide, as a minimum, overland relief for the 100-year rainfall without increasing the flood potential for nearby buildings. Calculations shall be provided to show appropriate overland relief when the~~

primary drainage system is adjacent to buildings. In lieu of calculations, the plans must indicate at least a minimum of 1 foot of overland relief being provided between the relief point and the lowest entry point of any building.

7. To allow for clogging, grate inlets used at sump locations shall be designed using a 50% clogging factor.

78. No stormwater conveyance pipe shall be less than 15" in diameter. The minimum design slope of closed conduit storm drain pipes shall be 0.5%.

~~8. Storm sewer design calculations shall be performed in accordance with the practices presented in the current edition of the VDOT drainage manual.~~

~~9. All newly graded vegetated areas shall have a minimum 2% slope. Except as noted herein, all newly graded overland vegetated areas shall have a minimum 2% slope. Reductions to a minimum of 1% may occur on business, commercial and industrial sites. Conveyance Channels and BMPs shall comply with generally accepted industry standards to provide positive drainage. Recreational Sports Fields should be designed in accordance with accepted industry standards for the type of field and level of play, with a slope of no less than 1.25% (except baseball/softball infields which would be 0.5%).~~

10. Erosion & Sediment Control Basins, Traps, or other constructed Improvements shall not be designed in the FEMA Regulatory Floodplain unless otherwise approved by the Program Administrator.

11. Permanent ~~Fill~~ **Constructed** Slopes exceeding a 3:1 slope ratio must be stabilized with sod, or erosion control matting or other approved alternative.

12. In general, there may not be a reduction in pipe size greater than one standard increment along the direction of flow.

13. For drainage, all closed conduit and culvert design should be in accordance with the latest version of the VDOT Drainage Manual.

14. High Density Polyethylene (HDPE) pipe is approved for use along pedestrian trails, temporary installations, privately maintained storm drainage systems for commercial, industrial and multi-family residential developments, and where allowed in the right of way by the latest version of the VDOT Road and Bridge Standards, Specifications or Instructional & Informational Memorandum.

15. All ponds shall have debris filters at the low-flow orifice controlling the extended drawdown period. Trash racks shall be required at the tops of drop inlet spillways to protect against clogging of the spillway under any operating level. They shall be removable as a unit.

A201.8.1.B Stream Channel Erosion

1. The Plan-approving authority may determine that some watersheds or receiving stream systems require enhanced criteria in order to address the increased frequency of bankfull flow conditions brought on by land development projects. Therefore, in lieu of the reduction of the 2- and 10-year post-developed peak rate of runoff as required in subsection 201.8.1.A.2 of this Manual, the land development project being considered shall provide 24-hour extended detention of the runoff generated by the 1-year, 24-hour duration storm at the discretion of the Plan-approving authority.

A201.8.10 Maintenance and Access Easements**SWM/BMP and Drainage Easement Widths**

<u>Pipe Diameter</u>	<u>Minimum Easement Width</u>
15" – 23"	10'
24" – 32"	20'
33" – 48"	25'

<u>Pipe Depth</u>	<u>Minimum Easement Width</u>
0' – 9.9'	10'
10' -19.9'	20'
20'+	30'

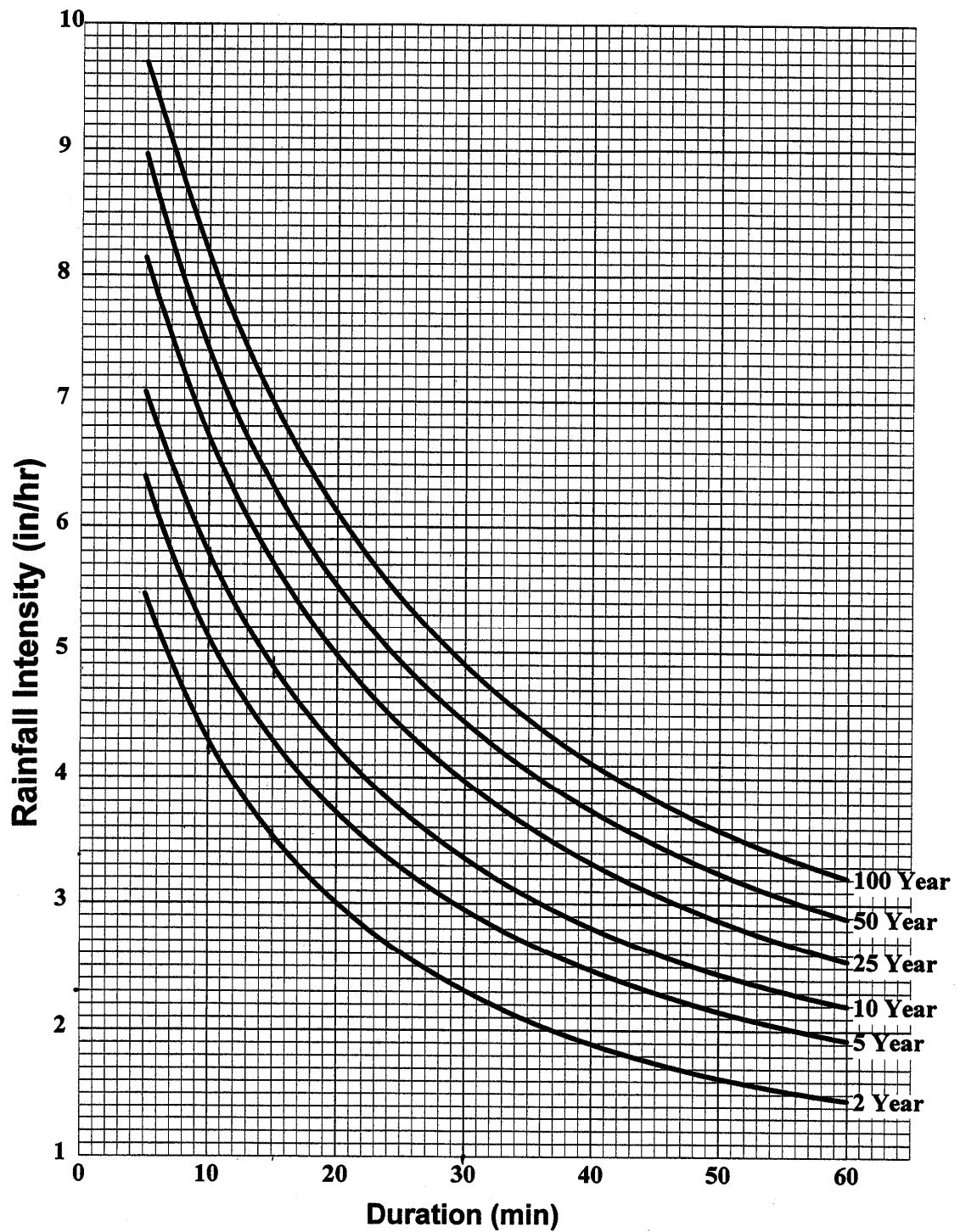
Access Road and Easement Width

Minimum Access Road Width	= 8'
Minimum Access Road Easement	= 10'

Access Roads

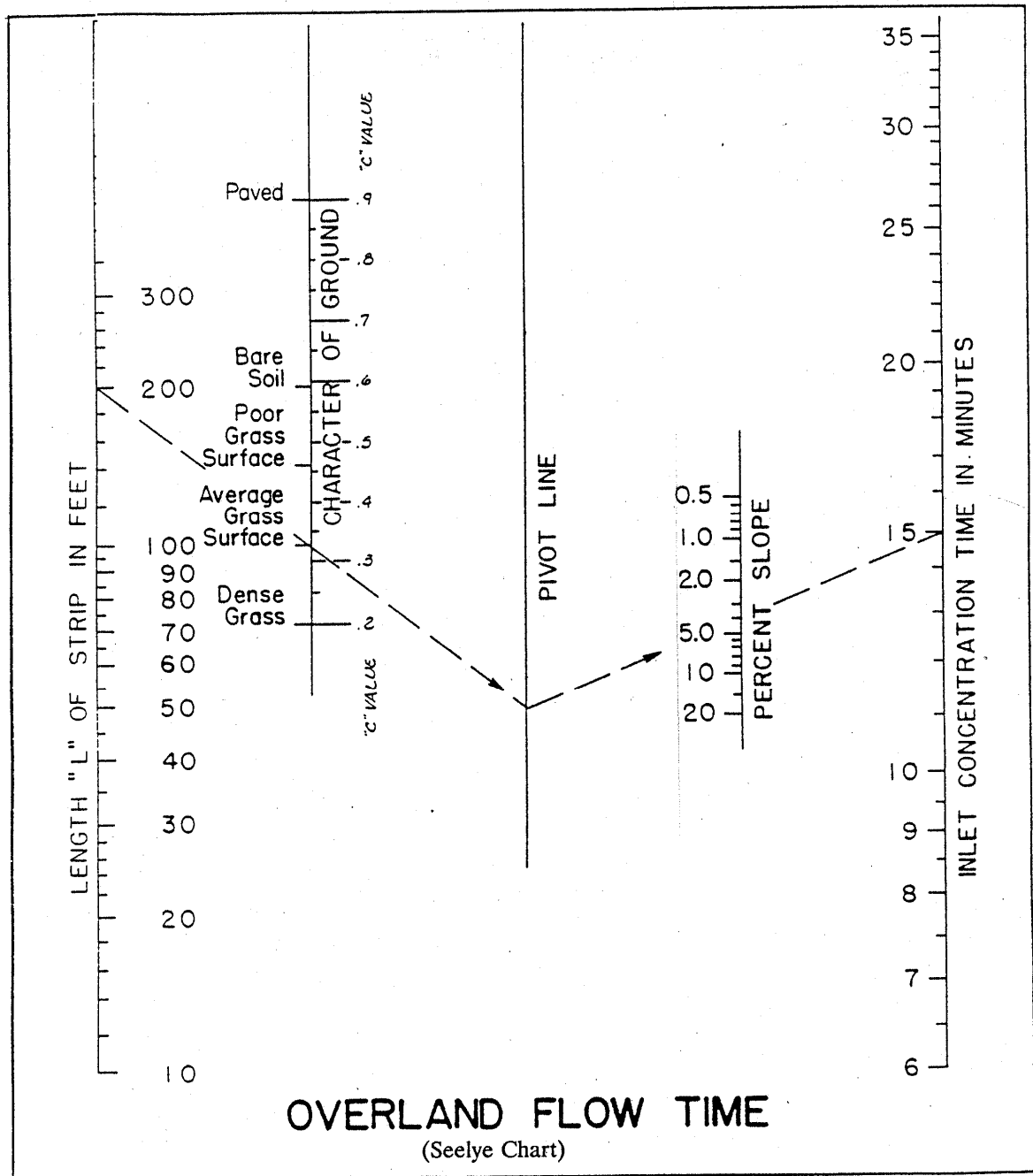
<u>% of Grade</u>	<u>Road Treatment</u>
0% - 3.49%	grass
3.5 % - 6.99%	compacted gravel mix (21-A)
7.0% - 12.0%	pavement

A203.2.2.C Stormwater Management Plan Calculations

Figure 2.1**Fauquier County Rational Method IDF Curve**Source: Virginia Stormwater Management Handbook

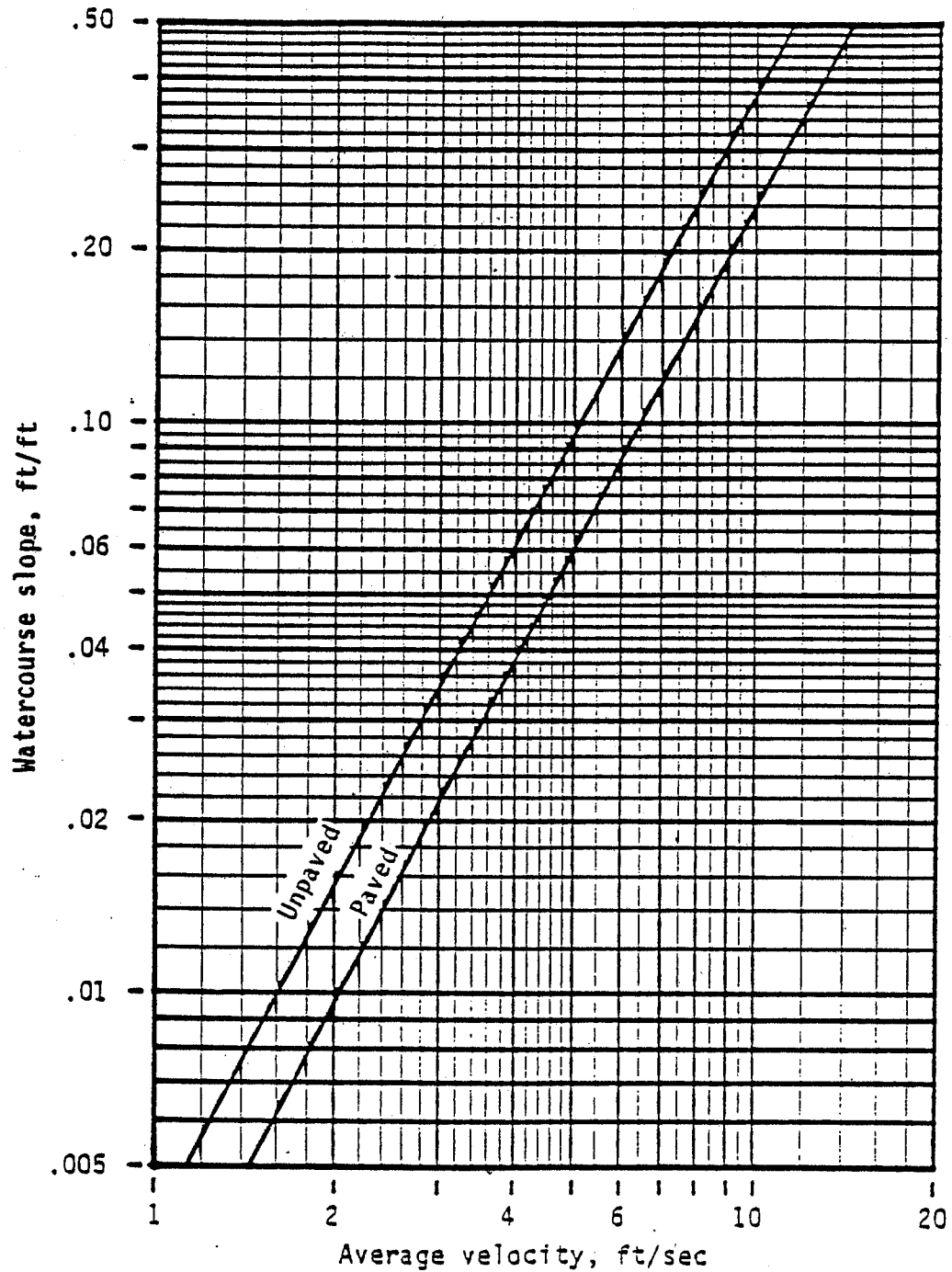
Revisions Adopted: ?

Figure 2.2
T_c Calculations



Source: Data Book for Civil Engineers, E. E. Seelye

Revisions Adopted: ?

Figure 2.3

Source: TR-55

Figure 2.4T_c and Peak Discharge Sensitivity to Overland Sheet Flow Roughness Coefficients Table

Description	Manning's 'n'	Overland Sheet Flow Time * (hrs.)	Pre-Developed Total Time of Concentration, tc (hrs.)	2-Yr. Pre- Developed Peak Discharge** (cfs)
Woods – Light Underbrush	.40	0.75	0.87	8.5
Rangeland - Natural	.13	0.31	0.43	15.0
Woods – Dense Underbrush	.80	1.31	1.43	6.0
* overland flow time calculated using Manning's Kinematic solution (TR-55)				
** peak discharge computed using Example 6.1 hydrology in the <u>Virginia Stormwater Management Handbook</u>				

Source: Virginia Stormwater Management Handbook**Figure 2.5**

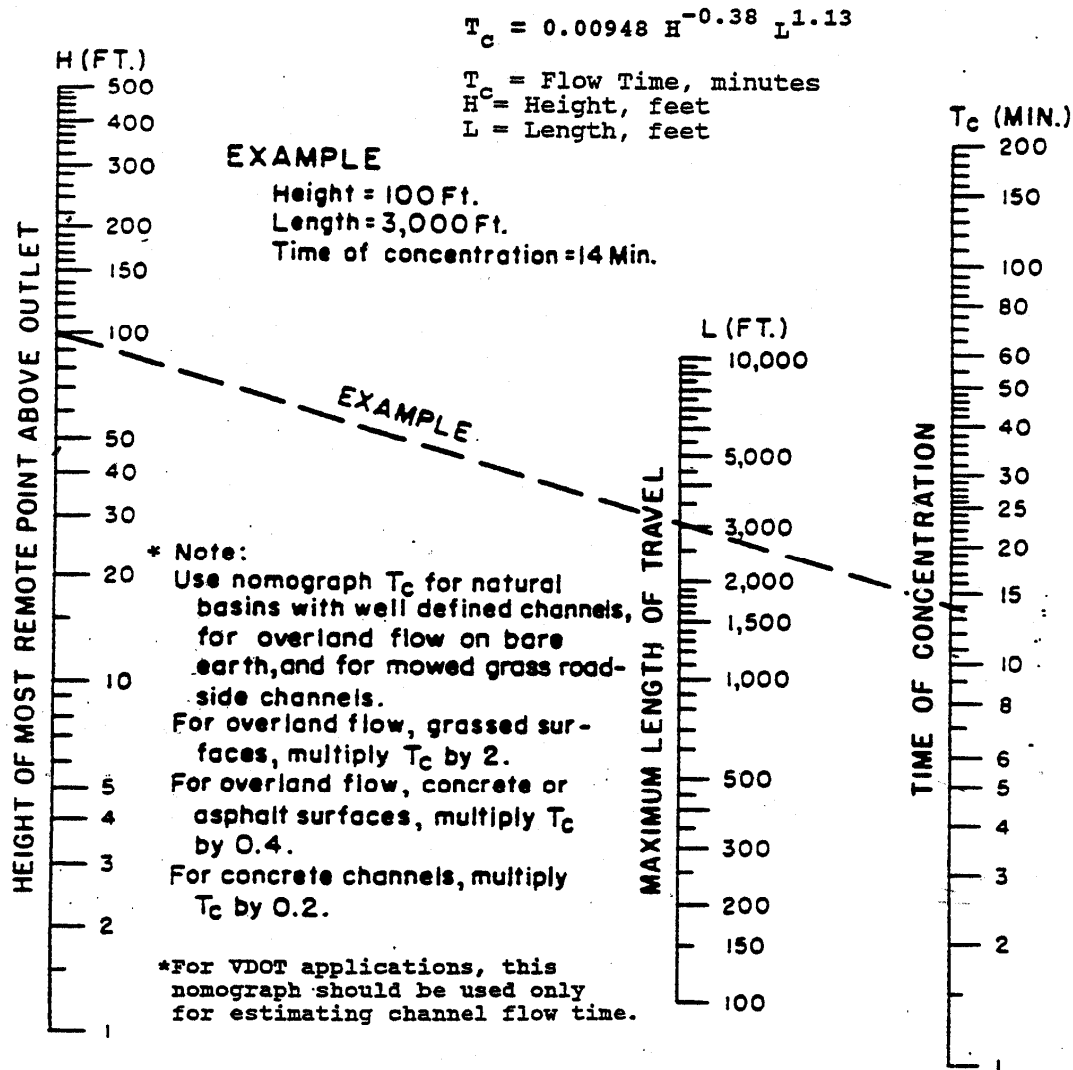
Roughness Coefficient 'n' for the Manning Equation – Sheet Flow

Surface Description	'n' Value ¹
Smooth Surfaces (Concrete, Asphalt, Gravel or Bare Soil)	0.011
Fallow (No Residue)	0.05
Cultivated Soils – Residue Cover < 20%	0.06
Cultivated Soils – Residue Cover > 20%	0.17
Grass – Short Grass Prairie	0.15
Grass – Dense Grasses ²	0.24
Grass – Bermuda grass	0.41
Range (Natural)	0.13
Woods ³ – Light Underbrush	0.40
Woods ³ – Dense Underbrush	0.80
¹ The 'n' values are composite of information compiled by Engman (1986).	
² Includes species such as weeping lovegrass, bluegrass, buffalo grass, blue grama grass and native grass mixtures.	
³ When selecting n, consider cover to a height of about 0.1 ft. This is the only part of the plant cover that will obstruct sheet flow.	

Source: Virginia Stormwater Management Handbook

Refer to Chapter 4 of the Virginia Stormwater Management Handbook for further explanations of calculating time of concentration.

Figure 2.6



Based on study by P. Z. Kirpich,
 Civil Engineering, Vol. 10, No. 6, June 1940, p. 362

(Rev. 8/95)

TIME OF CONCENTRATION OF SMALL DRAINAGE BASINS

The Virginia Department of Transportation derived an equation from and added it to this nomograph. This was done without the author's permission in the interest of providing the user with an optional mathematical solution. The Department warrants neither the accuracy nor the validity of this equation and cautions the user that he uses it at his own risk.

Source: VDOT Drainage Manual

Revisions Adopted: ?

SCS NRCS Runoff Curve Numbers

Refer to TR-55 for general assumptions and limitations. For specific footnotes, see TR-55 Table 2-2a - d.

Figure 2.7

Runoff Curve Numbers for Urban Areas*

Cover Description		Curve Numbers for Hydrologic Soil Groups			
Cover Type and Hydrologic Condition	Average Percent Impervious Area	A	B	C	D
Fully developed urban areas (vegetation established):					
Open space (lawns, parks, golf courses, cemeteries, etc.) Good Condition (grass cover > 75%)		39	61	74	80
Impervious areas:					
Paved Parking lots , roofs, driveways, etc. (excluding right-of-way)		98	98	98	98
Streets and Roads:					
Paved; curbs and storm sewers (excluding right-of-way)		98	98	98	98
Paved; open ditches (including right-of-way)		83	89	92	93
Gravel (including right-of-way)		76	85	89	91
Dirt (including right-of-way)		72	82	87	89
Urban districts:					
Commercial and business	85	89	92	94	95
Industrial	72	81	88	91	93
Residential districts by average lot size:					
1/8 acre or less (town houses)	65	77	85	90	92
1/4 acre	38	61	75	83	87
1/3 acre	30	57	72	81	86
1/2 acre	25	54	70	80	85
1 acre	20	51	68	79	84
2 acres	12	46	65	77	82
Developing Urban Areas:					
Newly graded areas (pervious areas only, no vegetation)		77	86	91	94
Idle lands (CN's are determined using cover types similar to those in TR-55 Table 2-2c)					
* Average runoff condition and $I_a = 0.2S$					

Source: TR-55 adapted Table 2-2a.

Figure 2.8

Runoff Curve Numbers for Cultivated Agricultural Lands*

Cover Description			Curve Numbers for Hydrologic Soil Groups			
Cover Type	Treatment	Hydrologic Condition	A	B	C	D
Fallow	Bare Soil	-	77	86	91	94
	Crop residue cover (CR)	Poor	76	85	90	93
Row Crops	CR	Good	74	83	88	90
	Straight row (SR)	Poor	72	81	88	91
	SR	Good	67	78	85	89
	SR + CR	Poor	71	80	87	90
	SR + CR	Good	64	75	82	85
	Contoured (C)	Poor	70	79	84	88
	C	Good	65	75	82	86
	C + CR	Poor	69	78	83	87
	C + CR	Good	64	74	81	85
	Contoured & Terraced (C&T)	Poor	66	74	80	82
	C&T	Good	62	71	78	81
	C&T + CR	Poor	65	73	79	81
Small grain	C&T + CR	Good	61	70	77	80
	SR	Poor	65	76	84	88
	SR	Good	63	75	83	87
	SR + CR	Poor	64	75	83	86
	SR + CR	Good	60	72	80	84
	C	Poor	63	74	82	85
	C	Good	61	73	81	84
	C + CR	Poor	62	73	81	84
	C + CR	Good	60	72	80	83
	C&T	Poor	61	72	79	82
	C&T	Good	59	70	78	81
	C&T + CR	Poor	60	71	78	81
	C&T + CR	Good	58	69	77	80
	SR	Poor	66	77	85	89
	SR	Good	58	72	81	85
	C	Poor	64	75	83	85
	C	Good	55	69	78	83
	C&T	Poor	63	73	80	83
	C&T	Good	51	67	76	80
* average runoff condition and $I_a = 0.2S$						

Source: TR-55, Table 2-2b

Figure 2.9

Runoff Curve Numbers for other Agricultural Lands*

Cover Description		Curve Numbers for Hydrologic Soil Groups			
Cover Type	Hydrologic Condition	A	B	C	D
Pasture, grassland, or range-continuous forage for grazing	Poor	68	79	86	89
Pasture, grassland, or range-continuous forage for grazing	Fair	49	69	79	84
Pasture, grassland, or range-continuous forage for grazing	Good	39	61	74	80
Meadow—continuous grass, protected from grazing and generally mowed for hay	-	30	58	71	78
Brush—brush-weed-grass mixture with brush the major element	Poor	48	67	77	83
Brush—brush-weed-grass mixture with brush the major element	Fair	35	56	70	77
Brush—brush-weed-grass mixture with brush the major element	Good	30	48	65	73
Woods-grass combination (orchard or tree farm)	Poor	57	73	82	86
Woods-grass combination (orchard or tree farm)	Fair	43	65	76	82
Woods-grass combination (orchard or tree farm)	Good	32	58	72	79
Woods	Poor	45	66	77	83
Woods	Fair	36	60	73	79
Woods	Good	30	55	70	77
Farmsteads-buildings, lanes, driveways, and surrounding lots	-	59	74	82	86
*Average runoff condition and $I_a = 0.2S$					

Source: TR-55, Table 2-2c

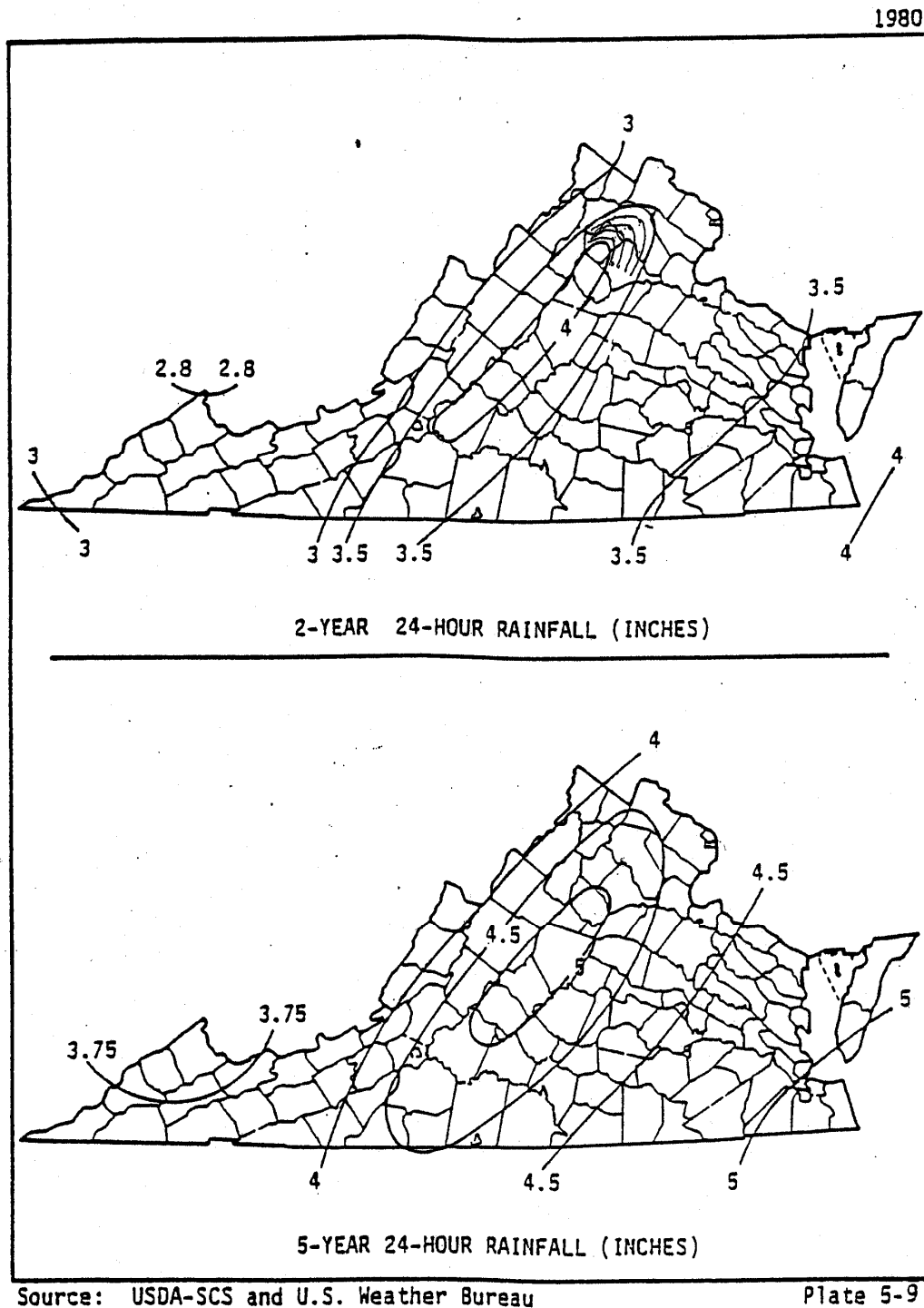
SCS **NRCS** Rainfall Depths**Figure 2.10**

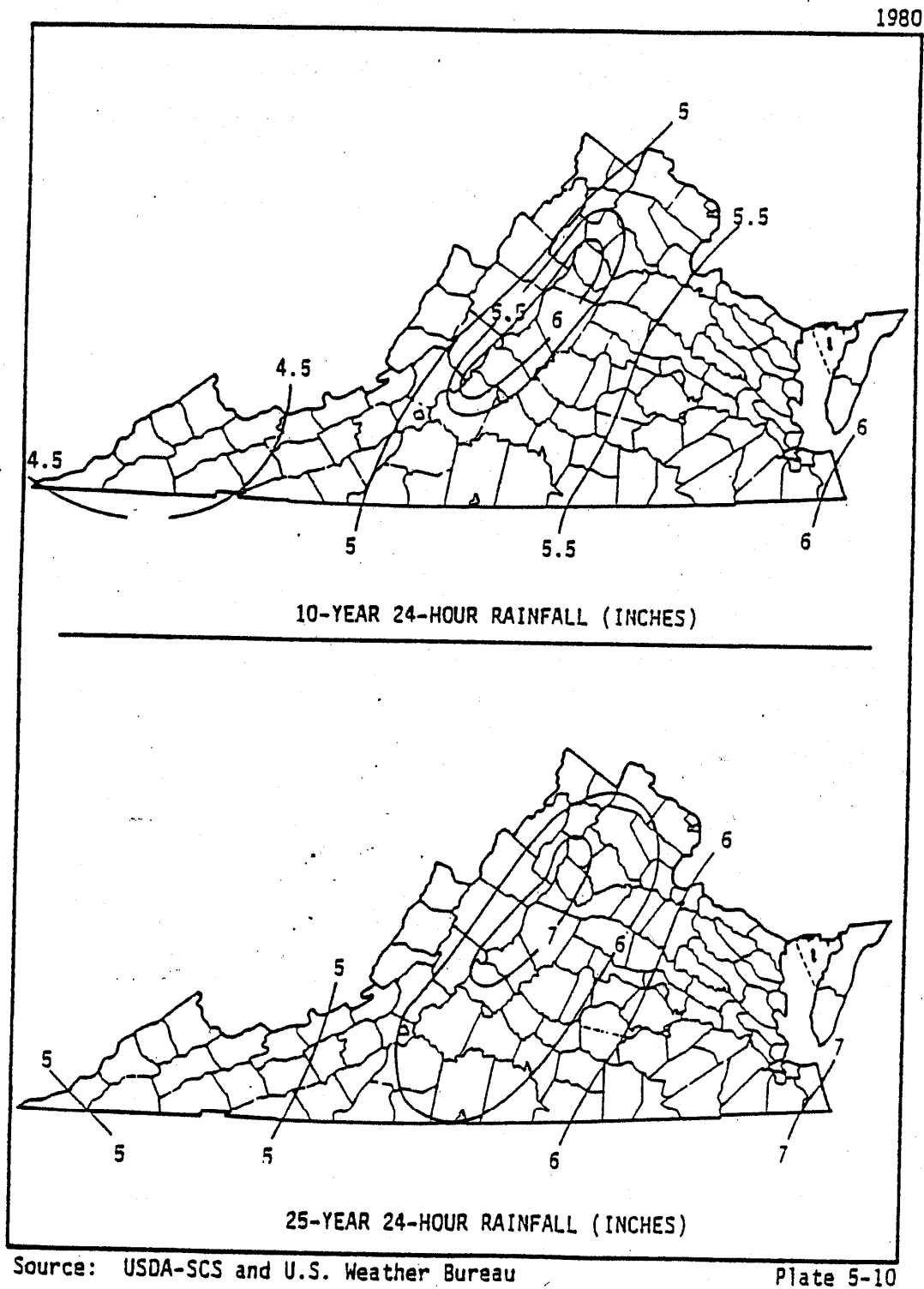
Figure 2.10 (Continued)

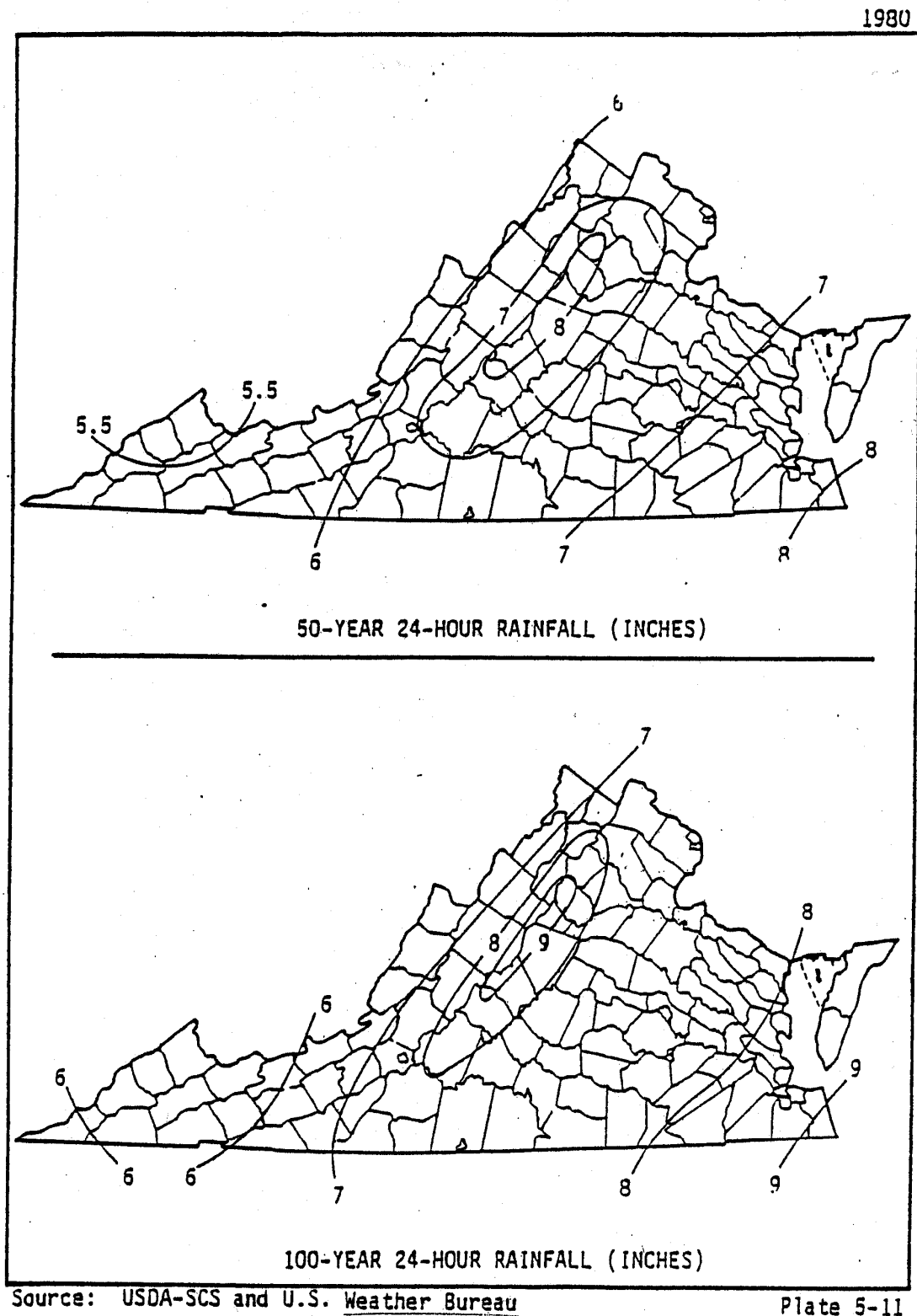
Figure 2.10 (Continued)

Figure 2.11
Mannings Channel ‘n’ Values

Type of Channel and Description	Minimum	Normal	Maximum
A. Natural Streams			
1. Main Channels			
a. Clean, straight, full, no rifts or deep pools	0.025	0.030	0.033
b. Same as above, but more stones and weeds	0.030	0.035	0.040
c. Clean, winding, some pools and shoals	0.033	0.040	0.045
d. Same as above, but some weeds and stones	0.035	0.045	0.050
e. Same as above, lower stages, more ineffective slopes and sections	0.040	0.048	0.055
f. Same as “d” but more stones	0.045	0.050	0.060
g. Sluggish reaches, weedy, deep pools	0.050	0.070	0.080
h. Very weedy reaches, deep pools or floodways with heavy stands of timber and brush	0.070	0.100	0.150
2. Flood Plains			
a. Pasture no brush			
1. Short Grass	0.025	0.030	0.035
2. High grass	0.030	0.035	0.050
b. Cultivated Areas			
1. No crop	0.020	0.030	0.040
2. Mature row crops	0.025	0.035	0.045
3. Mature field crops	0.030	0.040	0.050
c. Brush			
1. Scattered brush, heavy weeds	0.035	0.050	0.070
2. Light brush and trees, in winter	0.035	0.050	0.060
3. Light brush and trees, in summer	0.040	0.060	0.080
4. Medium to dense brush, in winter	0.045	0.070	0.110
5. Medium to dense brush, in summer	0.070	0.100	0.160
d. Trees			
1. Cleared land with tree stumps, no sprouts	0.030	0.040	0.050
2. Same as above, but heavy sprouts	0.050	0.060	0.080
3. Heavy stand of timber, few down trees, little undergrowth, flow below branches	0.080	0.100	0.120
4. Same as above, but with flow into branches	0.100	0.120	0.160
5. Dense willows, summer, straight	0.110	0.150	0.200
3. Mountain Streams, no vegetation in channel, banks usually steep, with trees and brush on banks submerged			
a. Bottom: gravels, cobbles and few boulders	0.030	0.040	0.050
b. Bottom: cobbles with large boulders	0.040	0.050	0.070
B. Lined or Built-Up Channels			
1. Concrete			
a. Trowel finish	0.011	0.013	0.015
b. Float Finish	0.013	0.015	0.016
c. Finished with gravel bottom	0.015	0.017	0.020
d. Unfinished	0.014	0.017	0.020
e. Gunite, good section	0.016	0.019	0.023
f. Gunite, wavy section	0.018	0.022	0.025
g. On good excavated rock	0.017	0.020	

h. On irregular excavated rock	0.022	0.027	
Type of Channel and Description	Minimum	Normal	Maximum
2. Concrete bottom float finished with sides of:			
a. Dressed stone in mortar	0.015	0.017	0.020
b. Random stone in mortar	0.017	0.020	0.024
c. Cement rubble masonry, plastered	0.016	0.020	0.024
d. Cement rubble masonry	0.020	0.025	0.030
e. Dry rubble on riprap	0.020	0.030	0.035
3. Gravel bottom with sides of:			
a. Formed concrete	0.017	0.020	0.025
b. Random stone in mortar	0.020	0.023	0.026
c. Dry rubble or riprap	0.023	0.033	0.036
4. Brick			
a. Glazed	0.011	0.013	0.015
b. In cement mortar	0.012	0.015	0.018
5. Metal			
a. Smooth steel surfaces	0.011	0.012	0.014
b. Corrugated metal	0.021	0.025	0.030
6. Asphalt			
a. Smooth	0.013	0.013	
b. Rough	0.016	0.016	
7. Vegetal lining	0.030		0.500
C. Excavated or Dredged Channels			
1. Earth, straight and uniform			
a. Clean recently completed	0.016	0.018	0.020
b. Clean after weathering	0.018	0.022	0.025
c. Gravel, uniform section, clean	0.022	0.025	0.030
d. With short grass, few weeds	0.022	0.027	0.033
2. Earth, winding and sluggish			
a. No vegetation	0.023	0.025	0.030
b. Grass, some weeds	0.025	0.030	0.033
c. Dense weeds or aquatic plants in deep channels	0.030	0.035	0.040
d. Earth bottom and rubble side	0.028	0.030	0.035
e. Stony bottom and weedy banks	0.025	0.035	0.040
f. Cobble bottom and clean sides	0.030	0.040	0.050
3. Dragline-excavated or dredged			
a. No vegetation	0.025	0.028	0.033
b. Light brush on banks	0.035	0.050	0.060
4. Rock Cuts			
a. Smooth and uniform	0.025	0.035	0.040
b. Jagged and irregular	0.035	0.040	0.050
5. Channels not maintained, weeds and brush			
a. Clean bottom, brush on sides	0.040	0.050	0.080
b. Same as above, highest stage of flow	0.045	0.070	0.110
c. Dense weeds, high as flow depth	0.050	0.080	0.120
d. Dense brush, high stage	0.080	0.100	0.140

Source: Virginia Stormwater Management Handbook

Figure 2.12
Permissible Channel Velocities

Permissible Velocities for Grass-Lined Channels Table		
Channel Slope	Lining	Velocity* (ft./sec.)
0 – 5%	Bermudagrass	6
	Reed canarygrass Tall fescue Kentucky bluegrass	5
	Grass-legume mixture	4
	Red fescue Redtop Sericea lespedeza Annual lespedeza Small grains Temporary vegetation	2.5
5 – 10%	Bermudagrass	5
	Reed canarygrass Tall fescue Kentucky bluegrass	4
	Grass-legume mixture	3
Greater than 10%	Bermudagrass	4
	Reed canarygrass Tall fescue Kentucky bluegrass	3
* For highly erodible soils, decrease permissible velocities by 25%		

Source: Soil and Water Conservation Engineering, Schwab, et. al. and American Society of Civil Engineers.

Figure 2.13

Permissible Velocities for Unlined Earthen Channels Table	
Soils Types	Permissible Velocity (ft./sec.)
Fine Sand (noncolloidal)	2.5
Sandy Loam (noncolloidal)	2.5
Silt Loam (noncolloidal)	3.0
Ordinary Firm Loam	3.5
Fine Gravel	5.0
Stiff Clay (very collodial)	5.0
Graded, Loam to Cobbles (noncollodial)	5.0
Graded, Silt to Cobbles (noncollodial)	5.5
Alluvial Silts (noncollodial)	3.5
Alluvial Silts (collodial)	5.0
Coarse Gravel (noncollodial)	6.0
Cobbles and Shingles	5.5
Shales and Hard Pans	6.0

Source: American Society of Civil Engineers

A204.1 General

1. SWM facilities shall be designed to regulate the 2 and 10 year storm such that the post-developed peak flows do not exceed pre-development peak flow and safely pass the 100 year storm event.
2. SWM and BMP facilities shall not be located in required buffer areas unless authorized by the Zoning Administrator.
3. All SWM/BMP ponds must be constructed prior to 70% completion (based on performance guarantee) of the approved project. When ponds are used as temporary sediment controls, the facility must be converted once 90% ~~permanent~~ stabilization has been established as defined in Section 208.2 of this Manual.
4. Every stormwater treatment practice shall consider acceptable forms of water quality pretreatment. The applicability of pretreatment will be at the discretion of the ~~review agent~~ Program Administrator.
5. All wet facilities shall have an aquatic bench at least 10' wide with slopes not to exceed 1:10 (V:H) slope or 1' water depth.
6. No facility shall have slopes and/or embankments steeper than 3:1 (H:V) without prior approval of the Program Administrator.
7. No more than one (1) penetration shall be allowed through a dam structure without prior approval of the Program Administrator.
8. ~~Stormwater management facilities may be either above grade or below grade design, however, underground facilities shall only be permitted within non-residential areas.~~ SWM/BMP Facilities may be either surface or underground design. However, underground facilities shall not be permitted in single family detached subdivisions. In no case shall SWM/BMP Facilities be on individual lots. This provision shall not preclude the use of Low Impact Design (LID) practices such as bioretention facilities, dry wells, etc. on individual lots.

The construction of underground facilities shall be monitored throughout their construction. Upon completion, a licensed Professional Engineer shall certify that the facility has been built according to the approved plan. The Engineer's certification shall also include a statement that the facility is functioning as designed.

The following note shall be provided on all plans utilizing underground facilities: "Construction inspections are required throughout construction by the design engineer or other qualified professional to ensure that stormwater management facilities are being constructed in accordance with the approved design plan."
9. The use of a gabion basket is not acceptable design for isolating a forebay from a dry stormwater facility without prior approval from the Program Administrator.
910. Principal outlet control structures shall be reinforced concrete pipe (RCP) unless prior approval is obtained by the ~~approval authority~~ Program Administrator.

11. Emergency Spillways and their outfall channels shall safely convey flow from a 100 year storm to a receiving channel. Receiving channels do not have to be adequate for the flow from a 100 year storm. A storm drainage easement shall be provided for the exit channel of all emergency spillways, sufficient to convey the maximum emergency spillway flow to an existing downstream receiving channel.

~~102.~~ No combined primary and emergency spillway will be allowed without the prior approval ~~by~~ of the Program Administrator.

~~11. Unless otherwise approved by the director, all ponds, wet and dry, must provide for a gravity low flow drain and no BMP storage credit is allowed for computed volume that is below the low flow drain elevation.~~

13. The minimum orifice size is 1" for BMP draw down devices, provided that the design draw down times can be achieved or additional methods to protect the facility from clogging should be undertaken. If the orifice required is less than 1" to meet water quality requirements, then another type of stormwater management facility should be considered.

~~124. All SWM facility~~ Stage-storage and Stage-discharge routings may include the required BMP volume. ~~shall have design frequency storms start at the "BMP full elevation." Meaning that no water quality storage volume credit is allowed when routing for quantity control.~~

15. Freeboard requirements in accordance with Virginia Stormwater Management Handbook must be provided from the 100-year water surface elevation (WSE) assuming principal riser structure is clogged. Calculations must be provided to demonstrate the emergency spillway is sized to pass the 100-year storm event assuming the principal riser structure is 100% clogged. However, for combined spillways (excluding weirs) the freeboard requirements in accordance with the VSMH must be provided from 100-year WSE assuming the riser structure is 50% clogged. The emergency spillway constructed as part of the stormwater facility shall be designed to convey the 100-year storm event safely without causing damage to the facility.

~~13. The 100 year storm must be analyzed through the emergency spillway only with the principal riser structure clogged. In the event of no emergency spillway, the 100 year analysis must assume 50% clogging of the controlling outlet component and start at the top of riser elevation unless otherwise approved by the Director.~~

~~14. Vegetated Overland Emergency Spillways shall not be designed to be activated for any storm frequency less than the 100 year storm event.~~

~~156.~~ For all Site and Subdivision Plans, the maximum computed 100-year water surface elevation must be contained within the Stormwater Management Easement Parcel. ~~For all Site Plans, the maximum computed 100 year water surface elevation must be contained within a Stormwater Management Parcel or Easement.~~

~~167.~~ All SWM/BMP Facilities shall be designed for the total contributing drainage area.

18. All Stormwater Management Ponds shall have their toe of embankment established a minimum of 10 feet from all property lines. A "No Plant Zone" area shall be established

extending a minimum of 10 feet beyond the embankment toe and abutment contact and shall be included in a Stormwater Management maintenance easement. Trees, shrubs, and any other woody plants are not to be planted in the “No Plant Zone” area. In no case shall hydrophilic trees or shrubs, such as those in the maple, sycamore or willow species, be used within 25 feet of the embankment toe and abutment contacts.

19. A minimum separation of 50’ from the computed 100-year water surface elevation shall be provided between drainfields and SWM/BMP facilities, except wet ponds. A minimum separation of 100’ shall be provided between drainfields and wet ponds.

20. The Seasonal High Water Table shall be incorporated in the design of a SWM/BMP Facility. Procedures to be used to determine if there is a Seasonal High Water Table” and the “Permeability Testing for SWM Facilities using Infiltration are as follows:

Procedure to be used to determine if there is a Seasonal Water Table

Approved methods for determining depth of a high seasonal water table:

1. As identified by a Preliminary Soils Report or Type 1 Soils Survey.
2. Field examination by a Virginia Certified Professional Soil Scientist (CPSS), as approved by the County.

A. The CPSS shall examine and describe the morphology of the soil in the area of the proposed stormwater management facility.

B. The soil description shall include the percentage, size, and depth of all redoximorphic features, if present, within the soil profile, using standard terminology as presented in the latest version of “Field Book for Describing and Sampling Soils” by the United States Department of Agriculture, Natural Resources Conservation Service, National Soil Survey Center.

C. *Iron depletions of chroma 2 or less* shall determine the maximum depth of the seasonal high water table. Other features may indicate the seasonal high water table is above the iron depletions of chroma 2 or less. If so, the CPSS shall describe the features and their depth.

D. CPSS shall prepare and submit a report to the County for approval. The County shall have 30 days to review the report and respond in writing to the CPSS.

E. The report shall include:

- 1) plat showing location of the sampling points, topographic contours, existing and proposed drainage features and proposed location of stormwater management facility.

2) description of type of facility (wet pond, dry pond, etc), including depth of pond bottom or installation, as measured from existing topographic contour,

3) description of each soil profile examined. Specify depth of iron depletions of chroma 2 or less and depth of seasonal water table.

3. Water Table Study

A. A detailed plan for conducting the study shall be submitted to the County. The plan must be approved by the County for the results of the study to be considered valid. The plan shall be submitted a minimum of 45 days prior to the planned initiation of the study. The plan shall include:

1) description of stormwater management facility and its installation depth,

2) construction and installation methods for observation devices,

3) diagram of well construction components, materials, sizes, dimensions and installation depths,

4) proposed criteria for evaluating the results of the observations,

5) provisions that allow County staff to enter the monitoring site for the purpose of making independent observations throughout the study period, including written permission from the property owner,

6) general location of the study site on aerial photograph with property lines, topographic contours and property lines (available from the Fauquier County GIS Department),

7) provide property identification number of parcel where study site is located,

8) soil map and information from the Fauquier County Soil Survey. If a preliminary or Type 1 Soil Report is available, it shall be provided as it is the best available soil information.

B. Location and number of monitoring wells

1) Well locations shall represent the portion of the proposed area(s) most likely to exhibit the wettest soil conditions. The wettest locations shall be based on landforms and soil morphologic features.

2) A *minimum of three monitoring wells* shall be located in the proposed location of the stormwater management facility.

3) For large facilities, County may require additional monitoring wells. The number of additional wells needed will be determined during the review of the study plan.

C. Depth of monitoring well

The bottom of the well shall be placed a *minimum of eighteen inches below the bottom or installation depth* of the stormwater management facility. If a perched water table (episaturation) is present in the proposed study site, depth of the wells shall be designed according to the soil morphology. The depth(s) of the wells shall be proposed in the study plan and must be approved by the County.

D. Construction standards for manual monitoring wells

1) Construct a bore hole with a soil auger, taking care to limit smearing and compaction of the sidewalls and bottom of the hole.

2) Construct the bore hole when the soil is slightly moist or dry

3) The bore hole shall be of sufficient diameter to allow an annular space of one to three inches to remain between the pipe and borehole sidewall.

4) Case the bore hole with schedule 40 PVC pipe with an inside diameter of 1.5 to 3 inches.

a) The lower 12 inches of the pipe shall have 1/8 inch to 1/4 slits or 1/8 to 1/4 inch diameter holes drill in it.

b) The pipe should be covered with a threaded cap that can be tightened to minimize vandalism.

5) Backfill the annular space around the pipe with clean pea gravel to a depth of one to two inches above the uppermost slit or drilled hole.

6) Fill the annular space to within two to four inches of the surface with bentonite or neat cement.

7) Backfill to the surface with fine textures soil, making a collar at the surface to minimize water entering the well (the cased bore hole).

8) If the wells are to be read manually, establish a reference point that allows the measurements to be made to the surface of the water with an accuracy of ½ inch.

E. Construction Standards for Automated wells.

If the wells are equipped with automated data recorders, follow the manufacturer's installation instructions. Periodic inspection of automated wells is highly recommended to ensure that data is being recorded. Incomplete data may, at the discretion of the County, invalidate the test.

F. The **yearly observation period** for water table studies shall be December 1 through May 31, inclusive.

G. The **normal rainfall determination period** shall be January 1 to October 31 immediately prior to the beginning of the study.

H. Frequency of observations:

1) Automated wells shall be configured to collect data a **minimum of two times in every 24 hour period**.

2) Manual wells:

a) Observations shall be made a **minimum of two times in any 7 day period**.

b) No more than three consecutive days without a recorded observation is permitted.

c) In soils suspected of having a rapidly fluctuating water table, consideration should be given to increasing the frequency of observation.

d) The frequency of observation may be modified upon mutual agreement between the County and the applicant, if circumstances warrant more or less frequent observations

I. Length of study

1) The length of the study shall encompass a **minimum of one yearly observation period**, with cumulative precipitation that is 80 percent or greater of the 30 year average during the normal rainfall determination period.

2) The length of study shall encompass a **minimum of two yearly observation periods** if cumulative precipitation is less than 80 percent of the 30 year average during the normal rainfall determination period.

<u>Length of Study</u>	<u>Normal rainfall determination period</u>
<u>1 yearly observation period</u>	<u>greater than or equal to 80% of the 30 year average</u>
<u>2 yearly observation periods</u>	<u>less than 80% of the 30 year average</u>

3) The study may be ended at the request of the applicant at any time. Premature test termination renders all test data invalid.

4) The cumulative precipitation *during the observation period* shall be between 80 and 120 percent of the 30 year average for the observation period to be considered valid.

5) The applicant shall have the option of accepting the results of the observation period when the cumulative precipitation is greater than 120 percent of the 30 year average for the period.

6) Observation period precipitation information shall be referenced from the closest NOAA approved weather station that appears to reflect the general climatic conditions as those at the study site. Alternative sources of study period precipitation data may be approved by the County on a case-by-case basis.

J. Recording of observations in manual wells

1) Record the depth to the water from the reference point to the nearest ½ inch.

2) Water level measurements shall be converted to indicate the depth below ground surface that water was observed.

K. Criteria for determination of the seasonal water table

The seasonal water table shall be the shallowest of:

a) The shallowest depth at which water is observed for *30 cumulative days*.

b) The shallowest depth water is observed for *20 consecutive days*.

L. Site modifications that may impact the water table study are prohibited during the study period. The prohibited activities include construction of a soil drainage system, cutting or filling of soil, timber harvesting or any other activity deemed by the County to potential impact the validity of the study. Site modifications performed after the beginning of the study shall invalidate all observations made prior to the site modifications.

M. Reporting and notification

1) Copies of the water table observation data and precipitation data shall be submitted to the County within 14 days of the end of each observation month.

2) A report shall be submitted to the County within 30 days of each observation period that includes:

- a) Discernable relationships between the observation data and the precipitation data.
 - b) The seasonal water table depth based on cumulative days.
 - c) The seasonal high water table depth based on consecutive days.
 - d) The percent of normal precipitation that occurred during the annual observation period.
 - 3) A final report shall be submitted to the County within 60 days of completion of the report. The report shall include:
 - a) all water table data, precipitation data and appropriate data summaries,
 - b) a discussion of the overall results of the study including the minimum depth to seasonal water table, percent of normal precipitation, cumulative days observed and consecutive days observed.
 - 4) Water table studies will only be considered valid if performed by authorized individuals. Authorized individuals are:
 - a) Virginia Certified Professional Soil Scientist
 - b) Professional Geologists
 - c) Professional Engineers
 - 5) Parties responsible for conducting the water table study shall certify, through signing a statement and affixing their professional seal, that the information submitted is accurate, complete and represents an analysis of all available data for the site. When multiple separate parties work together, all parties shall sign and seal the certification statement.
- 4. Other methods approved on a case by case basis.

Permeability testing for stormwater management facilities using infiltration

Permeability (infiltration) testing

A. Number of test points

1) The number of points shall be sufficient to accurately characterize the variability in subsurface conditions that may impact the operation or performance of the proposed stormwater management facility.

2) A minimum of 5 test points shall be required per facility. The number of test points for extremely small facilities shall be determined on a case-by-case basis, and shall be approved by the County.

3) Where a large facility is proposed, additional test points may be required. The number of test points to be investigated shall be determined on a case-by-case basis and shall be approved by the County. The number of test points shall be sufficient to provide a reasonable assurance that the full range in variability typically encountered in similar soil and site conditions can be observed.

B. Test point location

1) The location of the test points shall be sufficient to provide a reasonable assurance that the full range in variability typically encountered in similar soil and site conditions can be observed.

2) Where a large facility is proposed, the location of the test points shall be determined on a case-by-case basis and shall be approved by the County. The location of the test points shall be sufficient to provide a reasonable assurance that the full range in variability typically encountered in similar soil and site conditions can be observed.

C. Depth of testing

Test depths shall be 0 to 3 feet below the proposed trench bottom/installation depth, with at least one measurement at trench bottom/installation depth and at least one measurement at 3 feet below trench bottom/installation depth.

D. A final report shall be submitted to the County within 60 days of completion of the test. The report shall include:

a) field data sheets,

b) calculation of permeability/infiltration rate, in inches per hour, for each test point

c) calculation of permeability/infiltration rate, in inches per hour, for the facility

d) discussion of the variability in permeability/infiltration rate between the test points and its effect on the performance of the proposed system.

E. Permeability studies will only be considered valid if performed by authorized individuals. Authorized individuals are:

a) Virginia Certified Professional Soil Scientist

b) Professional Geologistsc) Professional Engineers

F. Parties responsible for conducting the permeability study shall certify, through signing a statement and affixing their professional seal, that the information submitted is accurate, complete and represents an analysis of all available data for the site. When multiple separate parties work together, all parties shall sign and seal the certification statement.

G. Approved test procedures1) Constant head permeameter test

a) It is an in situ test of saturated hydraulic conductivity

b) The reading interval is based upon the rate of water movement. The time between readings is normally reduced with faster rates of water movement. The reading interval shall be sufficient to establish a pattern of water movement. Common reading intervals are:

i) 1 to 2 minute intervals for rapid rates of water movement (greater than 1.5 inches per hour)

ii) 5 to 10 minute intervals for moderate rates of water movement (0.5 to 1.5 inches per hour)

iii) 15 to 30 minute intervals for slow rates of water movement (less than 0.5 inches per hour)

c) The number of readings shall be sufficient to establish a pattern of water movement. The readings shall be recorded from the beginning of the test through completion.

d) The test is considered complete when at least 4 consecutive water level drops are identical or very similar, indicating that the soil is completely saturated and the permeameter flow rates indicate only the rate of water movement through the soil. The testing period will vary with the moisture level of the soil. As soil moisture decreases, the test period increases because of the time required to saturate the soil. **Minimum** test periods shall be:

i) 30 minutes for soils with rapid rates of water movement (greater than 1.5 inches per hour)

ii) 1 hour for soils with moderate rates of water movement (0.5 to 1.5 inches per hour)

iii) 2 hours for soils with slow rates of water movement (less than 0.5 inches per hour)

e) Test results

i) The Glover solution (Zanger, C.N. 1953. Theory and Problems of Water Percolation. U.S. Department of Interior, Bureau of Reclamation, Engineering Monograph No 8, Denver, Colorado) shall be used to calculate saturated hydraulic conductivity.

ii) Saturated hydraulic conductivity calculations for the last 4 readings shall be documented for each test point.

iii) The saturated hydraulic conductivity of the test area shall be determined by averaging the last saturated hydraulic conductivity calculation from each test point.

2) Percolation test

The percolation test shall use the Virginia Department of Health standard percolation test procedure.

3) Double ring infiltrometer

ASTM standard D-3385 shall be used as the test procedure.

4) Generally accepted Industry Standards/Methodology.

A208.7(e) Administrative Policy for Early Grading**Fauquier County Administrative Policy for
Early Grading**

In order to facilitate development of commercial, industrial and governmental projects, Fauquier County may approve a Land Disturbing Permit for Early Grading (hereinafter termed Early Grading Permit, EGP), in accordance with the provisions of DSM 208.7(d) and (e).

Whether a project may be considered for the issuance of an Early Grading Permit shall be at the sole discretion of the Director of Community Development. The Director shall make such determination based on considerations such as, but not limited to, the likelihood the project can proceed forward in a timely manner, the complexity of the project, the public need to have the project move forward expeditiously, and the prior performance of the applicant and the prospective contractor in compliance with E&S laws.

An applicant's intent to apply for Early Grading Permit processing should be established early in the planning stages of the project. Typically a concept is developed prior to preparing and submitting the first submission of a Major Site Plan or Infrastructure Plan for the project site. A discussion of the applicability of the EGP process to a particular project should occur prior to or during the pre-application meeting for the project.

An Early Grading Permit will be limited to elements shown on the approved Phase I and/or Phase IA Erosion and Sediment Control (E&S) Plan (see definitions on page 5), and may include site clearing and grading, open-ended culverts to facilitate positive drainage, temporary sediment trapping devices for erosion and sediment control, temporary and permanent stabilization and retaining walls associated with necessary cut and fill operations. A separate building permit for any retaining walls, if required, shall be obtained prior to construction activity.

In accordance with Section 208.7(e) of the Design Standards Manual, an application may only occur under one of the following circumstances:

- A major site plan for development of the property is currently under review.
- An infrastructure plan, with an approved plan of development, is currently under review for the full design of infrastructure associated with a given project, and a Type 1 Soil Survey has been performed for the entire development site.

In addition, the proposed project shall have received pre-authorization from the Director of Community Development for submission of the project under this EGP opportunity.

Procedures for Submission and Approval

1. A concept scoping meeting with Community Development and John Marshall Soil and Water Conservation District shall be conducted prior to the submission of an EGP application and preferably, prior to the first submission of the site or infrastructure plan.

2. It is preferable that the Phase IA E&S Plan be incorporated as part of the first submission of the site or infrastructure plan for review as part of the full project prior to submission of an EGP application.
3. Submission for EGP processing may occur at any time during the final site plan or infrastructure plan review. The plan shall address temporary and/or permanent stabilization of the site for each phase of site preparation and/or conversion. The Phase II E&S Plan must accompany the EGP submittal and must have a note in bold lettering clearly stating: “FOR INFORMATION PURPOSES ONLY; NOT FOR CONSTRUCTION.”

An Early Grading Plan shall not be approved until such time as there will be no further significant project modifications related to the overall building and site layout, clearing or grading of the site, the preservation of existing vegetative or environmental areas, or the location of temporary sediment trapping devices relative to permanent stormwater management facilities.

4. While submission for EGP processing may occur as set forth in #3 above, issuance of an EGP may not occur until after the full project has undergone a Technical Review Committee meeting to solicit comments from outside review agencies.
5. The scope of the EGP is represented by the Phase I and/or Phase IA E&S Plan only and shall address all drainage, E&S, grading comments, and other pertinent issues contained in the First Submission Comment Letter.
6. The applicant shall submit four (4) copies of the Early Grading Plans to the Department of Community Development, accompanied by a Land Development Application. Each plan sheet shall indicate “Early Grading only.”
7. Provided the Phase IA E&S Plan for early grading was incorporated into the first submission of the major site or infrastructure plan, the review of the subsequent submission of the EGP Application shall occur within fifteen business (15) days of submittal by the County to John Marshall Soil and Water Conservation District. Additional plan submittals will be processed at an accelerated time schedule provided there is commitment on the design engineer’s part to make the required changes in an equivalent accelerated time frame. Submission of an EGP application made independent of the major site or infrastructure plan review will likely require additional time for the initial review and may take up to 45 days, depending on the work load of the review agencies.
8. If applicable and unless it is shown that all work required to complete the early grading operation has absolutely no impact on a floodplain or wetlands, wetlands and other federal/state permits shall be required, and any necessary flood plain studies shall be approved and complied with prior to the issuance of an Early Grading Permit.
9. If applicable, any necessary off-site drainage easements shall be obtained or evidence provided that the necessary easements will be granted.
10. All special exception conditions and rezoning proffers that could be affected by the EGP as determined by the Director of Community Development shall be met prior to the issuance of the EGP.

11. Prior to approval of the Early Grading Permit, the applicant must submit evidence of filing the registration statement for the Virginia Stormwater Management Permit (VSMP) if applicable to the project.
12. The plan review fee for the Early Grading Permit, and the bond review fee and permit fee for the entire project will be \$4,000.00/acre, based on total disturbed acreage, with a fee cap of \$25,000. This fee is inclusive of all land disturbing review, permit, and bond review fees associated with the project, but does not include the overall site plan review fee, and shall be paid prior to the issuance of the EGP.
13. An E&S performance guarantee in the form of a cash deposit or letter of credit shall be required to ensure the successful and proper execution of the Early Grading Plan. The amount shall be based upon the total disturbed acreage of the project and shall be bonded at a rate of \$35,000 per acre. As an alternative to the flat bond fee, the owner shall have the option of providing a full bond estimate based on the County's per-unit cost listing and participate in the County's standard bond estimate review process, including payment of the bond estimate review fee, with the required bond amount established through that process. Irrespective of the alternative chosen, the per-acre fee amount as outlined in #12 above shall apply. The early grading performance bond will be released once the total site bond is in place.
14. The project owner shall execute a land developers agreement for early grading, with provisions as determined appropriate by the County to ensure performance under the agreement. As part of this agreement, the Developer will acknowledge that the work undertaken with the Early Grading Permit will be limited strictly to the work shown on the approved Phase I and/or Phase IA E&S Plans and is undertaken at the Developer's own risk. The Developer will further acknowledge understanding that there may be additional expenses and requirements needed to comply with the State Erosion and Sediment Control laws due to the staging of the project improvements and/or the timing of the Developer's ability to proceed with the Phase II E&S and other site construction beyond that allowed with the Phase I and Phase IA E&S Plans, including but not limited to the following:
 - a. On-going maintenance of E&S controls on the site, including permanent stabilization (permanent seeding) for areas that will not be put to final grade for a year or more,
 - b. Construction road stabilization for graded roadways that are not ready for permanent paving, and
 - c. Modifications to the configuration of the final site development plan that result in the relocation of drainage structures, less than optimum conversion of sediment basins to permanent stormwater facilities or the loss of tree save areas, conservation areas or drainfields.
15. Prior to the issuance of an Early Grading Permit, the required E&S performance guarantee and associated land developers agreement shall be submitted and approved. An EGP shall be valid for no more than six (6) months from the time of issuance, except that an extension of time may be made by the Director of Community Development to address unusual weather and/or site conditions. In any case where an extension of time has not been granted or the EGP has expired, and the land disturbing permit for the remainder of the project has not been issued, the developer shall be responsible for implementing the contingency site stabilization plan (Phase 1A) within fourteen (14)

days of the expiration of the permit. The land developer's agreement shall specifically address the situations under which enforcement action for non-performance will occur.

16. The owner and contractor shall hold a pre-construction meeting on-site with representatives of the John Marshall Soil and Water Conservation District prior to commencement of any land disturbing activity.
17. At any time following approval and release of the major site plan or infrastructure plan, the owner may request the EGP to be incorporated in a land disturbing permit for the full construction of the project, provided that the owner has replaced the original performance guarantee for one that covers the remaining E&S items and project improvements, and has executed a land developers agreement. It is preferable for the County to maintain only one performance guarantee.

DEFINITIONS:

Phase I E&S Plan – A plan that represents existing site conditions (i.e. - vegetative cover, topography, etc.) and reflects proposed perimeter sediment trapping practices/controls (silt fence, sediment traps, diversions berms, sediment basins, etc.). This plan will/may establish the initial mobilization and installation of perimeter controls for the site prior to land clearing/site preparation operations.

Phase 1A E&S Plan (Contingency Site Stabilization Plan) - This plan will serve as an interim phase of the erosion and sediment control Early Grading Permit Plan for site stabilization in the event that the Major Site or Infrastructure Plan has not been approved, bonded and permitted by the County by the time that: 1) perimeter controls have been established, and; 2) initial clearing and grubbing has commenced and/or completed, and/or; 3) rough grading operations have commenced/completed, and/or; 4) basic site-wide drainage conditions have been established. The Phase 1A Plan shall include conversion of natural drainage patterns to facilitate positive drainage (using diversion dikes, cut and/or fill operations, construction of retaining walls, installation of open ended culverts. etc.), the adequacy of all receiving channels on site per Minimum Standard 19, and appropriate vegetative measures. The Contingency Site Stabilization (Phase 1A) Plan along with the Phase 1 E&S Plan must serve as a stand alone plan per the guidelines in the Virginia Erosion and Sediment Control Handbook.

Phase II E&S Plan – A plan that provides for E&S control on the site following installation of hard infrastructure associated with the site or infrastructure plan (i.e. - curb & gutter, storm sewer inlets, permanent surface and subsurface drainage improvements, parking lots, sidewalks, etc.) Depending on the timing of the implementation of either the Phase I E&S and/or Phase IA E&S Plans, the Phase II E&S Plan must contemplate the progression of site improvements required by the Phase II E&S Plan from either the Phase I E&S and/or Phase IA E&S Plans. (In other words, depending on the progress of the site or infrastructure plan approval process, portions of the Phase IA E&S Plan may not be necessary and a transition to the Phase II E&S Plan, directly from the Phase I E&S Plan may be realized. Alternatively, it may be necessary for the Phase IA E&S Plan to be stabilized for a longer period than contemplated. In this case, a different temporary stabilization approach in Phase IA and transition from Phase IA into Phase II will be required. The Phase II E&S Plan should address both scenarios.)